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ANNUAL REPORT

OF THE

SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES

FOR THE FISCAL YEAR

1925

WASHINGTON
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1925

Treasury Department
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Letter of Transmittal

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, December 7, 1925.

SIR: In accordance with section 9 of the act of Congress approved July 1, 1902, I have the honor to transmit herewith the report of the Surgeon General of the Public Health Service for the fiscal year 1925.

Respectfully,

A. W. MELLON,
Secretary of the Treasury.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

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ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE

Treasury Department,
Bureau of the Public Health Service,
Washington, October 15, 1925.

Sir: In accordance with the act approved July 1, 1902, I have the honor to submit, for transmission to Congress, the following report of the operations of the United States Public Health Service for the fiscal year ended June 30, 1925. This is the fifty-fourth annual report of this service, covering the one hundred and twenty-seventh year of its existence.

The purpose of all health work is the application of human knowledge in the care and restoration of the sick and the prevention of disease. The end result is the prolongation of the span of human life and the prevention of human suffering and death.

In public health work the evidence of achievement is shown by the absence of epidemics or their prompt control, when this is possible, and the lowering of the death rate, particularly the death rate from disease.

It is well known that a material increase in population produces a marked tendency to a more than corresponding increase in sickness and death, and this increase in morbidity and mortality will certainly follow an increase in population unless rational measures are enforced to prevent such occurrence. It is indisputable that had we not learned how to prevent, in great measure, many of our communicable diseases and were we not given the means of accomplishing this, our population would be swept from time to time by epidemics which would make those which have occurred in the past seem mild in comparison.

Theoretically the United States is composed of individual self-governing republics. Practically, in so far as our national health is concerned, our people have grown into a body compact comparable to the human body, no member of which can suffer without affecting the well-being of all.

It is not possible to consider the public health as being divided into 48 or any other number of territorial entities. A rural community in Texas or California may produce the cream of the market in vegetables, fruits, and other edible commodities, but unless such commodities are produced under good sanitary conditions the people of New York or Massachusetts may suffer as a consequence. The same is true of oysters and to a much greater degree of milk, except that milk is not shipped quite so far as are vegetables. Polluted water taken by a common carrier in one State might lead to outbreaks of disease in any number of other States.

With present facilities for the rapid transportation of human beings by trains, vessels, automobiles, and even airplanes, a person may be exposed to a communicable disease in one State and develop the disease in any other State in the Union to which he may happen to go. Recently an example of the facility with which this may take place was brought to my attention. A national conference was being held in one of our Middle Western States. Due to faulty connections in the water system of the little town where the meeting was held, the drinking water became contaminated, producing a local outbreak of typhoid fever. Subsequently no less than eight States reported cases of typhoid fever in individuals who had evidently contracted the disease from this infected water supply.

In my last annual report I intimated that the almost universal tendency toward diminution of effort on the part of governmental health agencies and citizens, due to the necessity for economy in official business, might possibly result in a lowering of the standards of health throughout the Nation. I believe it may still be said with confidence that health officers generally sense an even greater tendency to laxity in public health work at the close of the present fiscal year. This laxity is not on the part of the officers themselves, but may be seen in the indifference of many of our people and in some degree in the open antagonism of certain small but active elements of our population.

There has been no importation of human plague, cholera, yellow fever, or other major quarantinable disease during the year. Rodent plague reappeared for a short time in New Orleans, La., and in Oakland, Calif. In New Orleans this was probable an importation, in Oakland an extension of the disease from the ground squirrels to the rats. In both instances the Public Health Service was asked to assume the direction of measures for its suppression, and did so at once. No human cases occurred either in New Orleans or in Oakland.

A somewhat extensive outbreak of smallpox at Vancouver, British Columbia, during the winter and spring months made it necessary to require the vaccination of all unprotected persons leaving that city for the United States.

The disinfestation of passengers from typhus-infected countries was continued, and no case of this disease arrived in quarantine.

Yellow fever was reported from the Gold Coast and Nigeria in Africa and from Salvador, Central America, and three countries in South America, during the fiscal year. At no time in the recorded history of yellow fever has the incidence of this disease been so low. It can not be gainsaid that this happy result is largely due to American effort and influence. There has been practically no "close quarantine" (detention of passengers and crews) on account of yellow fever during the fiscal year for almost the first time in the history of our quarantine system. This disease must still be regarded, however, as a very potential danger.

Provision was made for exemption from the operation of the quarantine regulations of vessels plying exclusively between Canadian ports and ports in the United States when conditions warrant such exemption. Bills of health are no longer required for these vessels.

The occurrence of rodent plague in New Orleans, La., and Oakland, Calif., and of human and rodent plague in Los Angeles, Calif., made it necessary to put into effect outgoing quarantine measures in these ports in order to prevent the infection from being carried to other States and to foreign countries.

Reports from officers of the Public Health Service stationed abroad, from consular officers of the United States, from foreign governments, and from other sources, give some idea of the world prevalence of diseases dangerous to the public health; although in some countries having large populations, the conditions are such that the reports are fragmentary and even reasonably accurate estimates are not obtainable.

Cholera was reported in many parts of Asia; but, with the exception of eight cases in European Russia, this disease was not reported from other world divisions. India reported more than 276,000 deaths from this disease during the calendar year 1924. This is nearly four times the number reported for 1923. During the early months of 1925 the incidence of the disease was much less in India than during the corresponding period of 1924.

In spite of the fact that the means for preventing smallpox is well known, this disease continues to be widespread and destructive. Incomplete reports from 62 countries included 218,000 cases and more than 50,000 deaths from smallpox during the calendar year 1924. The same countries reported 165,000 cases of smallpox and more than 45,000 deaths during 1923.

Comparison of the reports for 1923 and 1924 shows a decrease in the incidence of typhus fever in nearly all countries where this disease has been prevalent since the World War. More than 136,000 cases were reported from 29 countries in 1924, but this is less than half the number reported from the same countries in 1923. The disease is present, however, in nearly all parts of the world.

Plague has been widespread throughout the world for years. During 1924, reports of this disease were received from 49 countries or dependencies, including cases at many important ports and shipping points. More than 400,000 deaths from plague were reported in Asia, and there is little doubt that many more occurred. Nine countries in the Western Hemisphere (including the United States) reported plague. Constant vigilance and vigorous measures are necessary to hold this disease in check.

The ever-present menace of plague has been emphasized in previous annual reports. Referring to my report for the fiscal year 1924, it is desired to recall the following statements:

> It is probably only a question of time when plague will appear in this country in cities which have never been infected, and I feel that our people would be much safer and would be saved great expense in years to come if they could be induced to build more effectively against the rat. * * * It has been necessary to continue operations on a small scale in certain counties in California, on account of plague in ground squirrels, and I have no doubt that, under present conditions, this squirrel infection will continue for many years to come. This reservoir of plague in the United States should ever be kept in mind, nor should our vigilance in maintaining squirrel-free zones around rat-infested cities in these infected counties be relaxed.

In connection with this quotation is cited the outbreak of plague in Los Angeles, Calif., in which there appeared 33 cases of pneumonic plague, with 31 deaths, and 8 cases of bubonic plague, with 3 deaths, during the fiscal year. Both rodent and squirrel infection have also been found, and there seems to be no doubt that the infection in this case spread from ground squirrels in the vicinity of Los Angeles to the rats in the city and from these to human beings, though direct human infection from ground squirrels is known to occur quite readily and the squirrel could easily have been the original source of the infection in both human and rat cases in Los Angeles. Upon the request of the local authorities, the Public Health Service assumed direction of the plague-suppressive measures in Los Angeles and vicinity shortly before the close of the fiscal year.

One of the most important events of the year in the field of international health relations was the signing at Habana, Cuba, on November 14, 1924, of the Pan American Sanitary Code, which provides for the collection and dissemination of information concerning the incidence of communicable diseases and prescribes and standardizes the measures necessary to prevent the transmission of quarantinable diseases from one country to another. By its terms, when ratified by the signatory powers, the Pan American Sanitary Bureau is made the central coordinating sanitary agency of the various member republics of the Pan American Union, and the general collection and distribution center of sanitary information to and from these republics.

Preliminary reports of births in the United States for the calendar year 1924 indicate slightly higher rates than those for the year 1923. In 25 States, 1,608,283 births were registered in 1924, which is 22.5 births per 1,000 population. In 1923, the rate was 22.3 per 1,000. The rates varied from 31.6 in North Carolina to 16.1 in Montana.

Preliminary figures indicate that the death rate in the United States for the year 1924 was low. Twenty-nine States had an aggregate death rate of 11.9 per 1,000 in 1924 and 12.4 per 1,000 in 1923. In 1924 in these States the urban death rate was 12.4 per 1,000 and the rural death rate 11.4.

An important item in the demographic record for the year 1924 is the reduction in the number of deaths of infants under 1 year of age, per 1,000 births, from 77.7 in 1923 to 71.9 in 1924. These figures are based on data from 25 States.

But little change is apparent in the number of deaths of mothers as a result of causes incident to childbirth during the last nine years for which data are available. The proportion of mothers dying from these causes in the birth registration area ranged from 6.1 per 1,000 in 1915 to 9.2 in 1918. This means that of every 100,000 live babies born during that period from 600 to 900 mothers' lives were sacrificed. Nearly one-third of these deaths were due to infection of the mother when the child was born, an occurrence usually due to carelessness on the part of the attendant, too often an untrained or poorly trained midwife.

While perhaps not strictly within the purview of this bureau, I can not refrain from inviting attention to the ever increasing number of deaths and injuries from the operation of automobiles. The death rate from this cause has risen from less than 1 per 100,000 in 1906 to nearly 15 per 100,000 in 1923, or more than 16,000 deaths per year. (See chart, p. 191.) Incomplete reports for 1924 indicate a still higher rate for that year.

For a number of years the physicians of the United States, through the American Medical Association, carried on a publicity campaign against the use of fireworks in celebrating the Fourth of July, with the result that these injuries were reduced to an almost negligible number. As it was thought that warnings would no longer be required, they were discontinued. Reports from 36 States of the casualties for the Fourth of July, 1925, show that 111 persons were killed and 1,030 were injured from fireworks as a result of one day's celebration. Of the injured, it is stated that 148 will probably lose the sight of one or both eyes. In many cases injury or death was due to explosives that were considered harmless, such as sparklers, blank cartridges, cap pistols, skyrockets, small firecrackers, and Roman candles. Comment seems unnecessary.

Anthrax in man in the United States is usually due to infected shaving brushes or similar articles, or is contracted by workers in factories, sometimes from hides, sometimes from wool or horsehair which is being prepared for commercial use. From 20 to 50 deaths from anthrax have been recorded annually during the last decade.

A reference to the chart on page 190 presents a striking illustration of the progress that has been made in the control of diphtheria, the death rate in the registration area having dropped from 43.3 per 100,000 in 1900 to 12.1 per 100,000 in 1923.

Provisional reports from 35 States having an aggregate population of 88,500,000 indicate a still further reduction during the calendar year 1924, the rate for the States reporting being 9.3 deaths per 100,000. This decrease is unquestionably due in great measure to improved treatment, particularly to the early use of antitoxin in this disease, and to better isolation of cases. If parents can be induced to protect their children by the use of the toxin-antitoxin process of immunization, there is no reason why diphtheria may not be still further greatly reduced.

Death rates from diseases of the heart during the last 10 years for which data are available in the registration area show an almost steady increase and indicate that heart disease ranks first as a cause of death in man in the United States.

It is difficult to draw any very definite conclusions with regard to the trend of influenza and pneumonia from death rates as recorded since the year 1900. Influenza and pneumonia combined give rates second only to heart disease in magnitude.

Studies of goiter in the United States have so far revealed no deleterious effect on mentality attributable to this disease, if we may except those cases of toxic goiter in which temporary mental disturbances are noted. Effort is being made to determine the effects, if any, of goiter on physical condition, on behavior, on the incidence of other diseases on goitrous subjects, and to evaluate prophylactic measures.

The year 1919 is the first for which data are available for lethargic encephalitis ("sleeping sickness") in the United States. The number of deaths registered for that year was slightly less than 600. In 1923 nearly 2,000 deaths from lethargic encephalitis were reported. Data with regard to the prevalence of this disease in the United States are not satisfactory, due to imperfect or incomplete reports.

Studies of Malta fever, a serious disabling affection which has appeared a number of times in various sections of this country, indicate that there are two types of this disease to be found here. One of these types is responsible for very considerable losses of cattle, but under present conditions is apparently not readily transmissible to man. The other type, the Malta, or caprine strain, has been observed in goats in the United States and is readily contracted by man from drinking infected goat's milk.

Malaria is very inadequately reported in the United States. There are many sections that are relatively free from this disease and many others where it is still a serious health problem. The rates are higher among the colored than among the white population, probably due to greater exposure. Death rates in the registration area for 1922, for example, varied from one-tenth per 100,000 or less in Wisconsin, Michigan, Massachusetts, New Jersey, Oregon, and Pennsylvania to 11.9 in Tennessee, 16.9 in Georgia, 20.7 in Louisiana, 23.6 in Florida, 29.1 in South Carolina, and 38.2 per 100,000 in Mississippi. Malaria is known to be quite prevalent in Alabama, Arkansas, and Texas, but reports from these States are not sufficiently complete to qualify them for inclusion in the death registration area.

Measles is a disease which is extremely difficult to combat in the present state of our knowledge. A reference to the chart on page 187 will show that, while there has been, perhaps, a general reduction in the death rate from this disease since 1900, this reduction is not marked and the course of the disease is decidedly erratic. Our inability to control measles is due in great measure to the fact that there usually elapses a period of about four days from the time of the appearance of the initial symptoms to the time of the appearance of the eruption. Measles is communicable during this stage. The child is not infrequently at school during a part of this time and, unless a skilled diagnostician is called, the disease escapes recognition until the eruption appears. Many mild cases are never seen by a physician and are not reported. Failure to enforce quarantine measures during this period, and failure to quarantine unrecognized or unreported cases greatly increase the opportunity for its spread. An extension of school inspection with the exclusion from school of children who have colds, or fever, or who are otherwise indisposed, would remove from contact with other children many incipient cases. Recent scientific research suggests the possibility of perfecting an immunizing process. Whether or not such a process may be made practicable and readily available can not yet be determined.

Deaths from poliomyelitis for the last 13 years for which data are available indicate that the incidence of this disease is somewhat variable. Death rates were as low as 0.8 per 100,000 in 1922 and as high as 10 per 100,000 in 1916 in the registration area. The next highest rate for the period was 2.7 per 100,000, showing that the 1916 rate was unusually high. Reports from 29 States for the calendar year 1924 give a case rate of 6.2 and a death rate of 1.2.

Reports of scarlet fever show an apparent increase of 3 per cent in the number of cases in 1924 as compared with 1923. It is more than probable that this apparent increase is due to better reporting of cases, particularly in view of the fact that there was a decrease of 12 per cent in the number of deaths in 1924 as compared with the preceding year.

In the very beginning of the fiscal year 1925 (July, 1924) I had occasion to invite the attention of the State health officers and of the public in general to the menace of smallpox, an action which at that time was severely criticized by certain elements of our population who are opposed to vaccination, the claim being made that no such menace existed and that conditions were being deliberately misrepresented. Reports for the calendar year 1924 show an increase of 75 per cent in the number of cases and of 628 per cent in the number of deaths from smallpox in the United States over the year 1923. What might have happened had our people not been awakened to the necessity for vaccination can only be surmised.

Occasionally it has been found that tetanus has followed vaccination against smallpox in this country. Studies have been begun to determine the cause of this and to prevent its occurrence; and although the number of cases investigated to date is too small to justify any general conclusions, the fact remains that 11 cases of tetanus have been found following the use of bunion pads as vaccination dressings. Tetanus spores were demonstrated in 25 per cent of more than 200 such pads as were examined. Renewed effort is being made to induce physicians to use a standard technique when vaccinating and to provide proper after-care following vaccination.

The death rate from tuberculosis (all forms) in the registration area dropped from 201.9 per 100,000 in 1900 to 93.6 in 1923. (See chart, p. 189.) Reports from 35 States having a population of nearly eighty-eight and one-half millions, give a death rate of 88.6 for the year 1924 (for the area from which these reports were received). It would be beyond the scope of this foreword to attempt to analyze all of the factors making for this reduction. Unquestionably, much of it is due to State and municipal activities. Credit must be given to certain social agencies independent of but cooperating with State and local authorities in their work, and also to better living conditions resulting chiefly from increased earning capacity and shorter hours of labor in industry.

At the beginning of the present century, the control of typhoid fever seemed almost as hopeless as does the control of measles or influenza at the present time. The application of measures for the purification of water and milk supplies, the exercise of vigilance in protecting other foodstuffs, with prompt recognition and treatment of cases and carriers, have together given a most striking object lesson in the results of intelligent effort applied to the protection of the public health. This decrease is well shown in the chart on page 190. It must be said, however, that reports for the first half of the calendar year indicate that typhoid fever rates for 1925 may exceed those of 1924.

Whooping cough, despite our best efforts, constitutes a very serious factor in deaths of children, particularly young children. A glance at the chart on page 188 is sufficient to emphasize the fact that we have apparently made little progress in the control of this disease in the last quarter of a century, and also shows the very erratic course of the death trend of whooping cough. I desire particularly to stress the fact, well shown in the second chart, that whooping cough is particularly a slayer of infants and children under 5 years of age. It will be noted that of 42,655 deaths from whooping cough which occurred in the United States from 1918 to 1922, inclusive, 22,914, or 53.72 per cent, occurred in children under 1 year of age, while approximately 94 per cent of these deaths were in children under 5 years of age. This should teach us the importance of safeguarding in every way possible the young child from whooping cough. The older the child the better its chances are of surviving an attack of this serious disease.

The chief reason for our failure to control whooping cough in my opinion is the fact that from 7 to 12 days often elapse from the beginning of the cough until a diagnosis is made, first cases not usually being recognized until the "whoop" appears. In the present state of our knowledge, I would suggest as one of the most important measures in combating whooping cough, the education of parents with regard to the extreme danger of whooping cough in very young children.

In striking contrast to the decrease in cases and deaths from such diseases as diphtheria and typhoid fever is the increase in the number of deaths from cancer. A study of the incidence of cancer indicates that for the period 1900–1923 there was a marked increase in the number of deaths from this disease in the original registration area of the United States. (See chart, p. 191.) While some of this increase can be explained as being due to better reporting in recent years, to more accurate diagnosis, and to the fact that the lengthening of the span of life has enabled more people to live to the age at which cancer develops, it seems definitely established that a very considerable part of this increase is actual and can not be accounted for by these factors.

Almost double the number of deaths from diabetes (mellitus) are being reported for the registration area at the present time as compared with the year 1900.

Observations made in the course of studies in child hygiene continue to emphasize the importance of the correction in children of defective vision, carious teeth, diseased tonsils, adenoids, and other abnormal conditions likely to be found at this age. In studies of the incidence of disease in children, the common cold stands out prominently as the most frequent cause of illness. In the study of absenteeism in school children in certain schools under observation, it was found that approximately 4 per cent of the total possible days of school attendance was lost on account of sickness during the two scholastic years during which observations were made.

A study of the personality of drug addicts and of drug addiction in its relation to crime indicates that, during recent years, addicts in the United States have been recruited almost exclusively from nervously abnormal types of individuals who are peculiarly susceptible to addiction because of the unusual sense of mental relief and ease that narcotics give them. Criminals and psychopathic characters in general are prone to become addicts because of the calming effect of morphine or heroin upon them. The addicts in prisons are chiefly violators of recently enacted narcotic laws, and the large addict prison population is a necessary concomitant of those control measures that have been so successful in reducing the incidence of drug addiction.

Regulation of the sale in interstate commerce of biologic products has been continued as in previous years. In addition to the ever-increasing routine work required by this activity, several particularly important products have been studied during the year, among them, a proposed new treatment for tuberculosis ("sano-crysin"), and preparations that are being used for the prevention and treatment of scarlet fever. The results of these studies will be found in the report of the Division of Scientific Research. It is of interest to note that tests of material for use in connection with scarlet-fever work had to be tried out on human beings, animals not being suitable for these experiments.

Studies in nutrition have been continued and tend amply to confirm the rapidly developing opinion that a well-balanced diet containing sufficient vitamins constitutes a very important factor in our well-being.

Studies have been continued of dust hazards, benzol poisoning, illumination, hazards in connection with work with radium, posture, absenteeism, health conditions among 12,000 industrial workers, and of tetra-ethyl lead. The subject of the hazard of the manufacture and use of tetra-ethyl lead was deemed of sufficient importance for a conference to be held on May 20, at which time all experimental data bearing on this subject were presented and discussed. At the termination of the conference, a resolution was adopted requesting the Surgeon General to appoint a committee to study the available data and to recommend such experimental researches as might be necessary to determine the extent of this hazard and the conditions under which it may be used with reasonable safety.

In cooperation with the American Public Health Association, studies were continued of municipal health department practices and a bureau of information designed to supply health officials with detailed information with respect to current measures was developed.

These studies, while encouraging, reveal many defects of administration and many unproductive procedures, and there still exist many inconsistencies and discrepancies in health practice.

The Public Health Service continues to detail medical officers and supply all medical and hospital care to the United States Coast Guard and to be the principal medical agency for the Employees' Compensation Commission. The former approximately doubled its personnel during the year, and patients from the latter now outnumber those of any other class of beneficiaries except merchant seamen and constitute one-fifth of the total clientele. The Civil Service Commission, Bureau of Pensions, Lighthouse Service, Shipping Board, Steamboat Inspection Service, Veterans' Bureau, Mississippi River Commission, Bureau of Immigration, and the Prohibition Unit have been furnished various medical services prescribed and authorized. The number of merchant seamen, the principal beneficiaries treated, exceeded that of any previous year, as did the total amount of all relief furnished.

The task of segregating lepers, in accordance with the act of February 3, 1917, Public, No. 299 (an act to provide for the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States), is in process of execution, and 259 leper patients are already under treatment at Marine Hospital No. 66 (National Leper Home), Carville, La. An average of 400 tuberculous seamen are also constantly segregated and treated at Marine Hospital No. 9, Fort Stanton, N. Mex., and other hospitals, while a very large number of seamen with venereal infections and other communicable diseases, as well as a considerable number of insane, are isolated and properly cared for. The hospital at Ellis Island (Marine Hospital No. 43) was operated, as heretofore, for the Department of Labor, chiefly for the care of sick and detained immigrants.

In my last annual report, mention was made of the necessity for adequate appropriations to maintain proper standards of medical and hospital care which the Government is obligated to provide. The per diem cost per patient in the various marine hospitals, which averaged $4.08 for the fiscal year 1923 and $3.89 for 1924, was further reduced in 1925 to $3.80.

The campaign for the control of venereal diseases was continued during the fiscal year 1925 along the lines of the threefold plan of educational measures, legal measures, and medical measures. As heretofore the activities of the service were largely concerned with a cooperative program with the various State boards of health. In many of the State boards of health a stable program of venereal disease measures has been integrated with the other public health activities. In such States the outlook for a permanent plan for venereal disease control is very hopeful. In other States, unfortunately, there seems to be a tendency to curtail venereal disease work, and it is being overshadowed by other growing health measures. How deplorable this is may be realized when we recall the fact that the number of insane and feeble-minded, many of whom are in this condition as a result of preventable venereal disease, is constantly increasing and adding to the burdens of the taxpayer.

Of outstanding interest and importance was the conference of venereal disease control officers of various State health departments, and the United States Public Health Service. This conference was held in Hot Springs, Ark., December 1–3, 1924. Consideration was given to many of the important problems of the joint Federal and State program of venereal disease control, and important recommendations were adopted affecting the methods of treatment and the policies in effect at the various venereal-disease clinics throughout the United States.

In the field of legal measures progress has been very satisfactory. At this time practically every State has what is thought to be a sufficient amount of legislation or State board of health regulation to enforce essential measures looking toward the prevention of the spread of venereal diseases.

During the calendar year 1922, the last for which data are available, there were 78,070 persons cared for in almshouses and 348,928 in homes, day nurseries, and similar institutions. In addition to these, there were in hospitals and other institutions for the care of the insane and feeble-minded and epileptics a total of 348,174 persons. Records show that more than 400,000 persons go out from our State and Federal penitentiaries annually; many of those of our dependent classes as well as many of those in penal institutions are suffering from preventable diseases, which in some measure are factors in their delinquency or dependency.

The importance of milk as a food and the danger that it may convey disease can not be overestimated. The widest variance has existed in the methods adopted by State and city authorities to secure a safe and wholesome milk, hardly any two States or cities attacking the problem in just the same way. One of the investigations which is being pursued by the Public Health Service is for the purpose of determining whether it is possible to unify measures for the safeguarding of our milk supplies. At the close of the fiscal year 1925, mainly through the efforts of the Public Health Service in cooperation with State and local authorities, 8 States and 53 cities had adopted uniform measures for the sanitation of milk.

The annual conference of the Public Health Service with State and Territorial health officers held in Washington in June of this year was of more than usual interest and was attended by delegates from 30 States and 2 Territories. Among the important matters discussed were: A plan for the establishment of a morbidity area; a State-wide program of milk control; the occurrence of plague in the United States; stream pollution; cooperative measures for the sanitation of shellfish areas and shucking houses, and a progress report of studies of administrative health practices.

Continued difficulty has been experienced in securing candidates who will take the necessary examinations for the regular corps of the Public Health Service. This is due to the shortage of recent medical graduates and to the greater financial returns to physicians engaged in private practice as compared with those in Governmental positions. This inadequate pay is seen particularly in the lower grades, and this, with relatively long periods of service before officers are eligible for promotion, detracts from the desirability of a commission in the public service. Acting assistant surgeons and reserve officers have consequently been continued, as in recent years, to a degree which is not for the best interests of the Government. On account of the advantages of a mobile corps and the urgent need for efficient workers the number of regular commissioned officers should be substantially increased. This action would not increase the total personnel, nor would it require additional appropriations as the newly commissioned regular officers would take the places of temporary employees.

DIVISION OF SCIENTIFIC RESEARCH

In charge of Asst. Surg. Gen A. M. STIMSON

The division has continued to carry on investigations under the law empowering the Public Health Service to undertake researches into the diseases of man and the conditions affecting their propagation and spread. It has also supervised the enforcement of the law of July 1, 1902, regulating the sale of viruses, serums, toxins, and analogous products in interstate traffic.

Even in the most enlightened communities there is still an enormous toll of sickness and death which are, from a scientific standpoint, preventable. While in some instances, the scientific knowledge of the cause and nature of the disease and the means of preventing it are in advance of the methods in practice for this purpose, there are diseases and conditions affecting public health of which the knowledge is so imperfect that adequate measures for alleviation or eradication have not been worked out. It is becoming increasingly apparent that research in public health should not terminate when the purely physical factors have been determined. It should be continued until cheap, practicable, and effective methods have been placed at the disposal of mankind.

The following considerations have influenced the selection of problems for study: Whether the condition is widespread, affecting large areas of the country or a large part of the population; whether it is at present of local importance only, but possesses potentialities of becoming of widespread significance; whether, while the condition may have been subjected to illuminating study by other agencies, further researches may be necessary in order to adapt the knowledge to practical use; whether the problem is so fundamental in its nature that its elucidation would lead to widespread applications.

The large field activities that have engaged the attention of the division during the year are as follows: Industrial hygiene and sanitation; child hygiene; mental health studies; malaria investigations; epidemiology and statistics; and milk investigations.

Studies have been made of the following named diseases: Cancer, clonorchiasis, dengue, diphtheria, goiter, influenza, pellagra, pneumonia, Malta fever, poliomyelitis, Rocky Mountain spotted fever, leprosy, scarlet fever, smallpox, tuberculosis, tularaemia, and typhus fever.

An important feature of the activities of the Scientific Research Division is the cooperative contact which is maintained with outside agencies, which serve not only to suggest lines of valuable research but to afford opportunities for carrying them out. An example is presented by the current investigation of tetraethyl lead gasoline.

Following is a brief account of the work carried on under the division during the fiscal year 1925:

Cancer

Cancer studies, under the direction of Surg. J. W. Schereschewsky, were continued with headquarters in the Harvard Medical School, Boston, Mass.

Studies of the course of the mortality of cancer in the 10 original registration States for the period 1900–1920, which were completed at the end of the fiscal year 1924, were assembled for publication. The bulletin is in press. As stated in the previous annual report, the results of these studies show that in the 10 original registration States the increase in cancer mortality indicated by the crude death rates represented an actual increase. After suitable corrections had been applied for changes in age distribution, improvement in death certification, and the like, the increase in cancer mortality in the age group of the population 40 years and over was about 30 per cent for the 21-year period 1900–1920. Some of the most striking increases occurred in such readily recognized cancers as those of the buccal cavity, cancer of the breast, and cancer of the female genital organs, which showed higher percentage increases in the mortality than cancer of sites in which the diagnosis is more difficult, as for instance, cancer of the stomach and liver. The cause for these increases in cancer mortality must apparently be sought by means of careful epidemiological studies which, it is hoped, may shed some light on its etiology.

Penetration of various organic compounds into normal and into cancer cells.—This work conducted in the department of pharmacology, Harvard School of Medicine, was directed primarily to an effort to determine whether a relationship could be discovered between the chemical constitution of compounds and their penetration into, and their retention and elimination by, tumors of rats and mice. For this purpose, compounds were selected which could be determined quantitatively and which might have a deleterious action upon the tumor cells. There were available for this study a large number of new arsenic compounds (made in the pharmacological laboratory by Mr. Christianson) and also some new organic dyes and some mercury compounds. The former compounds were studied by Doctor Minot, the latter by Doctor Pearse.

New methods had to be devised for the analytical work, but some interesting results have already been obtained. Organic compounds of mercury were studied from two points of view—(1) the possibility of finding a compound of mercury which entered the tumor and had an injurious action upon it, and (2) the possibility that such a compound would serve as a source of secondary radiation if irradiation was subsequently applied. The experiments are far from complete but one or two striking results have been obtained. The presence of bromine in a fluorescein-mercury compound markedly increased the amount of mercury taken up by a tumor. That a general principle may be involved in this observation is suggested by the fact that the same was found to hold for analogous compounds containing arsenic instead of mercury. However, the administration of such a compound for a considerable period of time very materially increased the growth of the tumors. The mercury of "Mercodel" (a proprietary preparation of finely divided mercury which has been suggested for the treatment of cancer) did not enter the tumors.

Eosin was found to be retained by the tumors for a considerable period, and mice bearing tumors eliminated eosin much more slowly than did normal mice. Since eosin is one of the "photodynamic substances," it seemed possible that if eosin is retained by the tumor the destructive action of ultra-violet light might be enhanced. The experiments on this subject have not been completed, but one point of interest has been established; tumor-bearing mice succumb to irradiation with ultra-violet light more quickly than do normal mice. Whether the previous injection of eosin into the tumor-bearing mice increased the injurious action of the irradiation or not was not clear. The diminished resistance seemed dependent upon the size of the tumor rather than upon the presence or absence of eosin.

None of the compounds studied, however, seemed to have an injurious action upon the growth of the tumors.

The effects of many of the arsenic and mercury and other compounds upon the histological structure of the tumors were studied, but no consistent variations from untreated tumors were noted.

The effects of very high frequency currents upon living cells.—Work was begun during the last half of the fiscal year on the study of the effects, if any, of very high frequency currents upon living cells.

Clonorchiasis

The investigations to determine whether clonorchiasis may be spread on the Pacific slope have been interrupted during the year by acute outbreaks of plague in Los Angeles and in Oakland.

However, the studies have been continued at San Francisco, under the direction of Surg. N. E. Wayson, to determine, if possible, the environment favorable to the spontaneous hatching of the eggs. In order to learn whether the aquarial conditions were suitable to the development of the life cycle of the egg, there were introduced a few snails of the species considered to be intermediate hosts in Japan. These imported snails have survived and oviposited. But, though held in the aquaria since October, 1924, until the present time, none of several examined has shown infestation with the parasite, nor have any of the fish exposed in the same aquaria proved to be infected. Apparently normal ova have been recovered from the sludge of these aquaria five and six months after having been deposited in them.

More detailed studies have been made of the effect of the reaction of the water on hatching. Reactions have been tested, such as may be found in waters in nature, and also those which are beyond the limits of the degree of acidity and alkalinity of natural waters, but which may prevail within the organs or tissues of the snails or in septic collections of sewage.

It was observed that abrupt changes of reaction will frequently result in the spontaneous discharge of the egg contents, but there has been determined no constant effect on the hatching of the eggs.

Similarly, no optimum range of temperature has been determined after repeated tests throughout the probable temperature range in a subtropical country. Ova which were apparently well matured and alive were recovered from the sediment of a shallow dish eight months after deposit in the dish, which had been maintained at room temperature and contained tap water with a collection of eggs from which most of the rapidly putrescible fecal matter had been washed.

Apparently normal ova were also recovered from the sludge of a running aquarium, maintained for a year out of doors, through a temperature range of 10° to 18° C.

The large number of infestations with helminths among rats collected from garbage dumps and from establishments handling meat products, in Oakland, suggested that they might be used as a possible index of *Clonorchis* infestation. However, a search of the livers and bile passages of 500 of these selected rats exhibited no evidence of *Clonorchis* infestation.

Thus far the evidence here accumulated has not proved the hypothesis of the development of the life cycle of *Clonorchis* in a specific Japanese snail and in fishes, nor has it shown that the disease can be spread on the Pacific slope.

In the meantime additional data on the life cycle have been published in Asia. American investigators have reported *Melania hongkongensis* as a newly recognized primary intermediate host in China and they have also reported a number of fishes (top minnow, stone roller, little bass, mudfish) as newly demonstrated secondary intermediate hosts. Thus the hitherto available knowledge that only members of the molluscan genus *Bythinia* serve as primary intermediate host and only members of the fish family *Cyprinidae* serve as secondary intermediate hosts is now expanded to a point which proves that *Clonorchis* is strikingly nonselective in its hosts, and this later fact contraindicates the adoption of relaxed precautions if any change of policy is considered in regard to admission of carriers.

Diphtheria

Epidemiological studies of diphtheria in the city of Baltimore in collaboration with the health department of that city, and with the Johns Hopkins University School of Hygiene and Public Health, have been continued. These investigations, which are under the direction of Surg. W. H. Frost, in connection with his assignment in charge of the department of epidemiology of that school, have been carried out chiefly by Dr. J. A. Doull, associate professor of epidemiology in the School of Hygiene and Passed Asst. Surg. C. W. Mitchell, with the assistance from time to time of graduate students in the school. The work during the past year has comprised the following:

(1) An epidemiological investigation of all the cases of diphtheria reported in five city wards having an aggregate population of about 100,000. From this study, which has been continued since 1920, records have now been accumulated for about 1,600 cases, affording material for a variety of investigations into the epidemiology and control of diphtheria. In addition to the papers previously published on these studies, a paper by Doctor Doull and Dr. H. Lara on "The Epidemiological Importance of Diphtheria Carriers," which is based in part on this material, has been submitted to the American Journal of Hygiene for publication in the issue of July, 1925.

(2) A study of the efficacy of active immunization in the control of diphtheria in a part of the area covered by the case investigations. The special purpose of this study is to ascertain how much effect, if any, the immunization of a portion of the susceptible population in a typical urban area will have upon the prevalence of diphtheria in

the nonimmunized portion of the population. This is a question of importance in view of the fact that it is comparatively easy to reach and immunize a certain fraction of the child population, especially of those in schools, but extremely difficult, with existing facilities, to extend the treatment to the entire susceptible population. Clinics for the testing and immunization of all children who presented themselves were operated, in this study, for a year and a half; and since, the discontinuance of the clinics, January 1, 1924, observations have been continued on the occurrence of diphtheria in the children treated and those not treated. The records of Schick tests and immunizations done in the clinics have already been compiled in the Statistical Office of the service, preparatory to a full analysis and report, which will be made when a sufficient period of observations subsequent to clinic treatment shall have elapsed. It appears, from preliminary analysis, that observations up to July 1, 1925, will be sufficient for the purpose, and it is proposed to prepare a report on the study as soon thereafter as possible.

GOITER

The activities of the office of goiter studies during the year have been under the direction of Surg. Robert Olesen, and were designed to determine the effects on the individual of endemic goiter. While the etiology, pathology, chemistry, prevention, and treatment have received their full share of attention, the effects—physical and mental—of endemic goiter have been largely taken for granted, the conclusions being almost entirely drawn from European experiences which are in no way comparable to those in the United States. Moreover, comparatively little research into the effects of endemic goiter has been undertaken in this country. If endemic goiter exerts certain ill effects, the nature and degree of the manifestations should be more adequately known in order that appropriate prophylaxis may be applied.[1]

Endemic goiter and mentality.—In attempting to learn something of the effects of endemic goiter, three lines of study were pursued. The first had for its purpose the determination of the relation between mentality and endemic goiter. In ascertaining this point, use was made of the intelligence tests of approximately 3,700 sixth-grade school children in the Cincinnati schools and the thyroid findings in the same group. As a result of this study it may be stated that, in so far as the children under observation were concerned, there was no detectable difference between the mentality of thyroid-enlarged and thyroid-normal children. Owing to the relatively small number of children included in this study this conclusion can not be accepted as final. Additional observations in other sections of the country are needed.

Endemic goiter and nutrition.—It has been stated without qualification by many writers that endemic goiter is usually associated with retarded physical growth. If true, this is an important observation and lends support to the contention that prophylaxis should be widespread. During the past year careful physical examinations, in which detailed physical measurements had a large part, have been made of approximately 3,000 school children in Cincinnati. At the same time careful note was made of the condition of the thyroid gland. This material is in the process of compilation.

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[1] Reprint No. 941, from Public Health Reports, July 25, 1924.

Endemic goiter and school absenteeism.—The deviations from physical and mental normal which have been ascribed to endemic goiter are legion. If children with thyroid enlargement are ill more frequently than normal children, and from specific maladies, it should be possible to determine these facts by checking absenteeism in the schools. Arrangements were made to record the causes of absence among the sixth grade children of 11 schools in Cincinnati. These records have been compiled during the greater portion of the school year. When assembled, the resulting data should indicate the amount and causes of absence among thyroid-enlarged and thyroid-normal children. In addition to the absentee records, estimates of teachers regarding nervousness, behavior, mentality, and other observable traits among the children were also gathered. At the close of the fiscal year the data accumulated were being compiled and studied.

Endemic goiter in Colorado.—Upon the request of the secretary of the Colorado State Board of Health a survey was undertaken in that State for the purpose of determining the distribution of endemic goiter. As a result of the study in Colorado it was concluded that endemic goiter prevails to a considerable extent in the State, and particularly in the southwestern portion of the western slope.[2] While the data gathered were deemed insufficient for comprehensive epidemiological study, they were believed to be sufficiently accurate to warrant the application of appropriate prophylactic and curative measures. Subsequently a number of specific recommendations were made to the State board of health in order that a reduction in goiter prevalence might be brought about.

Determination of goiter activities in States.—In an effort to learn what is being done to prevent and treat endemic goiter, a letter was addressed to each State health officer. From the replies received it was plain that the majority of State health departments are greatly interested in goiter prevention, though somewhat uncertain as to the most effective method of approaching the problem. In a few States prophylaxis is rather widely practiced, though as yet there appears to be no standardization of survey methods, classification of enlargements, or uniformity of application of remedies.

One of the important present day requirements, as indicated by the reports received from State departments of health, is the standardization of procedure, thereby insuring comparable surveys in different portions of the country. It is also evident that there is no unanimity of opinion as to the most effective prophylactic to be employed. An attempt was made to reduce this manifest confusion by recommending methods which had proved successful in the hands of service representatives. Already these procedures have been used satisfactorily by several health officers.

Assistance in making thyroid surveys.—Requests for assistance in making thyroid surveys were received from several State and city health officers. Owing to the limited personnel available, it was impossible to participate actively in the contemplated activities.

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[2] Reprint No. 983, from the Public Health Reports, Jan. 2, 1925.

However, through correspondence it was possible to suggest appropriate methods and thus facilitate the work. Assistance was afforded the commissioner of health of Norwood, Ohio, by training the medical personnel of the health department in the methods of examining and recording thyroid enlargements.

Study of deaf-mutism and endemic goiter.—It has been alleged by a number of writers that endemic goiter and deaf-mutism are closely allied. While this may be true in Switzerland and other countries in which goiter is highly prevalent, it appears not to hold in the United States. A study of the distribution of endemic goiter and deaf-mutism in this country has so far failed to disclose a relationship between the two conditions.

Influenza

Activities in the office of influenza investigations during the fiscal year 1925 have been carried on under the direction of Surg. J. G. Townsend along the same general lines as outlined in previous reports. During the period from October to May, when Doctor Townsend was absent from Washington on special duty, Statistician E. Sydenstricker was in temporary charge of the office. As in the year 1924, valuable assistance was rendered in these investigations by the Influenza Commission of the Metropolitan Life Insurance Co., to which the Public Health Service makes grateful acknowledgment.

During the year reports from college student groups and family groups were received regularly every two weeks. The collection of college group reports terminated June 30, 1925. A total of 14,482 students and 1,770 families (about 5,500 individuals) were enrolled for reporting the incidence of respiratory diseases; of these over 7,000 students were reporting regularly at the end of the study and 1,412 families (about 4,400 individuals) are continuing to report. The work of tabulating this large amount of information has been pushed as rapidly as possible. All of the information received on the college student enrollment records has been coded and checked for use on mechanical tabulation cards. The coding of the current clinical data was completed as follows: All family reports for the current year 1924 (approximately 35,000 forms); clinical reports from 685 students located in and around Boston covering a period of 5½ months (approximately 7,535 forms); clinical reports from students in Georgetown and Howard Universities at Washington. The nature of the information on the enrollment forms as well as on the clinical reports has been shown in a preliminary and progress report already published.[3]

Before the reports from the students were discontinued, it was deemed wise to secure more detailed data relating to the habits, exercise, diet, etc., and an additional questionnaire was sent to each reporter. A large proportion of replies has been received. Requests were also made of the city health officers at the places where the college groups were studied to report all deaths from uncomplicated influenza, together with the names and addresses of the reporting physicians. The health officers are complying with this request and the physicians concerned have been communicated with in an effort to ascertain the bases of their diagnoses from a symptomatological point of view. Communications were sent also to the medical officers in the various services requesting similar information on all cases of influenza coming under their immediate notice in the families. The response to this appeal has been very gratifying and many case reports have been received.

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[3] Public Health Reports, Oct. 24, 1924.

In view of the magnitude of the tabulations involved, it has not been possible to carry the work to a point where definite conclusions can be drawn or to judge of the significance of any of the indications afforded by a partial review of portions of the records obtained. Some preliminary tabulations, however, have suggested a few observations that are not without interest. These may be summarized briefly as follows:

(1) A current record of the incidence of respiratory affections among students located in Boston, Baltimore, Washington, Chicago, Columbus, New Orleans, and San Francisco, and a study of the symptoms as recorded by them, seemed to point to (1) a synchronous variation in attacks and (2) a similarity in symptoms, in periods of low and high incidence, in these widely separated localities during the period under consideration (October 1, 1923 to June 30, 1924).

(2) A preliminary tabulation of the attacks occurring among 685 individuals in and around Boston during the five and one-half months from October 15, 1923, to March 31, 1924, showed that during this period 90 per cent of the individuals suffered one or more attacks, and that the average number of attacks per person was 1.9. Of the total cases reported, 86.6 per cent were stated to be "colds," 4.4 per cent bronchitis, 7.8 per cent "sore throat" and tonsillitis, and 1.2 per cent influenza. Since the symptoms of the conditions as reported by the individual corresponded fairly well to the generally recognized clinical definitions of the various affections, it was believed that the recorded diagnoses were reasonably accurate.

(3) The previous histories of "colds" as experienced by the reporters were correlated with the actual incidence of respiratory attacks during the five and one-half months' period, with the result that a very definite positive correlation was shown. In other words, those individuals who reported a high susceptibility to colds in the past actually experienced a high incidence of respiratory attacks during even this short period.

(4) A tabulation of the records of 1,600 individuals in 500 families of medical officers showed a total incidence rate for 1924 of 2.2 attacks per person. Of the total number of respiratory attacks, 54 per cent were colds, 19 per cent bronchitis, 7 per cent sore throat and tonsillitis (exclusive of complications of colds or bronchitis), 8 per cent influenza, and 12 per cent recorded as two or more diagnoses. The incidence rate in this group was considerably lower than that reported by the Boston students, season and length of period considered. The students apparently reported more slight affections than the medical officers.

(5) The incidence of respiratory attacks, as well as the absence of such attacks, pointed to differences in susceptibility among persons of different ages in the medical officers' families, as shown in the table below. This indication tends to confirm the data already published by the Public Health Service on the incidence of respira-

tory diseases among school children and wage earners and is corroborated by unpublished morbidity data in the statistical office on other population groups.

Age incidence of respiratory attacks among 1,594 members of 500 medical officers' families during 1924

Age group	Rate per 1,000 for—		Per cent in each age group who were *not* attacked during 1924
	Influenza	All other	
0–4	171	2,854	9
5–9	223	2,401	17
10–14	107	1,738	25
15–24	80	1,272	34
25–34	237	1,716	16
35–44	209	1,692	19
45–54	222	1,365	23
55+	179	1,309	22

A review of the literature on influenza and the common cold was published.[4]

LEPROSY INVESTIGATION STATION

The following changes in medical personnel occurred during the past year: Surg. M. H. Neill relieved Surg. H. E. Hasseltine as director, July 14, 1924; Surg. R. P. Sandidge relieved Surg. P. J. Gorman June 22, 1925.

The headquarters of this station are at Kalihi, Honolulu. The officers attached to this station have carried on clinical and laboratory studies of leprosy and have conducted the medical treatment of the lepers segregated at Kalihi Hospital. There were 139 patients in Kalihi Hospital July 1, 1924. During the year 98 patients were admitted, 28 were paroled, 6 died, and 73 were transferred to Molokai. The number of patients in the hospital at the close of the year was 130.

The following table shows the character of cases admitted during the year and also the preceding three years as regards stage of disease and whether *Mycobacterium lepræ* (leprosy bacillus) was detected on admission:

Lepers admitted to Kalihi Hospital	Early cases	Moderately advanced cases	Advanced cases	Total	Bacteria + on admission	Bacteria − on admission
From July 1, 1921, to June 30, 1922	10	58	38	106	82	24
From July 1, 1922, to June 30, 1923	12	40	27	79	57	22
From July 1, 1923, to June 30, 1924	21	34	44	99	67	32
From July 1, 1924, to June 30, 1925	6	43	49	[1] 98	71	26

[1] One of these cases was not examined bacteriologically.

It is unfortunate that the early cases are so few and that their proportion shows no tendency to increase.

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[4] Supplement 48 to the Public Health Reports.

For the fiscal year 1924–25 the distribution was as follows:

	Cases		Cases
Hawaiian	35	Negro	1
Japanese	18	Fijian	1
Part Hawaiian	16	Japanese-Hawaiian	1
Portuguese	9	Filipino-Portuguese	1
Chinese	6	Chinese-Hawaiian	1
Korean	4		
Filipino	4	Total	98
American	1		

Sixty-four of the admissions were males and 34 were females.

In 18 of the 28 persons paroled during the year the leprosy bacillus was never detected. It has been present in the remainder. The average duration of segregation for the parolers was one year and four months. Twenty-four were males and four were females.

Persons paroled from Kalihi Hospital July 1, 1924, to June 30, 1925

Stage of disease on admission	Type of case on admission		
	Neural	Nodular	Mixed
Early	7	0	1
Moderately advanced	13	1	2
Advanced	3	1	0

During the past four years, in order to obtain parole, a patient must have shown absence of *Mycobacterium lepræ* for three successive examinations at three months' intervals and have shown no clinical evidence of activity during the same period. From September 1, 1920, to September 1, 1924, 394 cases of leprosy were admitted. Up to the present time, 124, or 31.47 per cent, have been paroled and 13 have relapsed. Seven of these received practically no chaulmoogra treatment on parole, while the great majority of those paroled took treatment regularly.

None of the six deaths during the year 1924–25 was due to leprosy.

Of the 73 cases transferred to the Territorial Leper Settlement on Kalaupapa, Molokai, 19 were transferred on account of disciplinary reasons, 14 by their own request, and 40 on account of failure to improve. The average stay in Kalihi Hospital of this latter class was 11 months.

The treatment of practically all patients with weekly intramuscular injections of from 1 to 3 c. c. of the mixed ethyl esters of chaulmoogra oil has become a well-established routine at this station and has been continued both in the hospital and for the treatment of paroled persons. Records are carefully kept to trace each patient through the period of hospitalization and parole to determine the ultimate result of the treatment.

During the year 230 patients in the hospital received a total of 6,475 intramuscular injections; also 205 paroled patients received 3,019 treatments at the out-patient department at Kalihi Hospital or by Territorial physicians on other islands.

A summary of over 40 articles dealing with the treatment of leprosy by injections of chaulmoogra or hydnocarpus esters has been prepared.

During the past six months, studies of the use of radium in leprosy have been started with especial reference to the treatment of leprous lesions of the nose. Seven cases having nodules in the nose were treated by the insertion of a 50-milligram tube in either nostril alternately at intervals of from two to three weeks. Exposure was from one and one-half to two and one-half hours. In all cases the nodules have disappeared. Three of the cases have become bacteriologically negative. Other similar cases not receiving radium treatment showed no change in their nasal condition. It is the intention to extend the scope of this work to determine the permanence of the effects of treatment and the effect of clearing up of lesions in the nose on the general condition of the patients.

The suggestion has been made that in leprosy there is a lack of fat-splitting ferments to attack the fatty capsule of the leprosy bacillus so often found in enormous numbers in the tissue. Certain experimental evidence has been brought forward to support this view which consists in finding very little fat-splitting substance in the blood of lepers as measured by its ability to split ethyl butyrate. An investigation of this question is in progress at this station and has shown the following results:

There was practically no difference in the lipase content of the blood of about 25 consecutive admissions to the leper hospital and an approximately equal number of persons in the Queen's general hospital, suffering from minor ailments. The figures for the amount of lipase in the blood were comparable to those given for normal individuals. Also, comparative tests were carried out on 20 patients who had shown marked improvement and on 20 others who had grown worse or shown no improvement. No significant difference in the lipase content of the serums of these two groups could be detected. On the other hand, in certain conditions where low lipase values have been reported low results were obtained by this station.

This work is being continued and a report will be prepared for publication.

At the University of Hawaii, researches on chaulmoogra oil compounds have been carried on as in previous years under supervision of the university chemists, personnel and material being provided by the Public Health Service. During the year two new compounds have been made from chaulmoogric acid, and sufficient analyses have been completed on each to establish their formulæ.

4-Chaulmoogrylaminophenylarsonic acid was prepared from chaulmoogryl chloride and arsanilic acid. This acid is a solid, insoluble in most solvents, and its sodium salt proved to be insoluble in water. It was hoped that this substance might represent the chaulmoogric acid principle suitably combined with arsenic for therapeutic use, but its physical properties made its use impossible.

Iododihydrochaulmoogric acid was prepared from chaulmoogric acid and hydrogen iodide. It is a solid melting at 68° C. The ethyl ester of the acid has been made, has a low melting point, and is readily soluble in oils. This substance has been found to be nontoxic for rabbits, and it is hoped to give it a clinical trial.

Work on the preparation of a tertiary alcohol of chaulmoogric acid is now in progress.

During the year, 45 liters of chaulmoogric esters were prepared. Ten and one-half liters were sent to headquarters at Kalihi and 37 liters were shipped to various leper colonies.

On April 15, 1925, an agreement was entered into between owners of certain patent rights in the United States concerning the manufacture of chaulmoogra ethyl esters, and the Surgeon General, licensing the Public Health Service to manufacture this product for the treatment of lepers under its jurisdiction and in Hawaii without royalty.

During the year close and agreeable cooperation has been maintained with the Territorial board of health, which maintains the hospital at Kalihi, while the Public Health Service furnishes medical treatment. In addition to these duties, officers detailed to this station served at the request of the board of health on 43 boards for the determination of the presence or absence of leprosy.

Malaria

The investigations of malaria during the past fiscal year have been in the general charge of Surg. L. D. Fricks, with headquarters at Memphis, Tenn.

The studies being conducted include malaria prevalence and distribution in Southern States; investigation of rural malaria control methods, including relation of highway construction and agricultural drainage to Anopheles production; fish control methods; special problems of house screening and mosquito habits; impounded water investigations; and special field studies.

Studies of malaria prevalence in Southern States.—It has become increasingly apparent that there is need in the organization of each of the health departments of Southern States for a physician trained in the use of the epidemiological method, with particular reference to malaria. This activity is relatively undeveloped in States most affected by malaria. Before a malaria epidemiologist can be employed, it is advisable to lay the basis of a division of epidemiology in connection with each of these States which will function in the control of communicable diseases generally. Assistance in this development has been rendered by the service to three States, and several others are undertaking similar work.

This should lead yearly to more exact information regarding the distribution, severity and possibilities of control of malaria in the South.

Considerable progress has been made in obtaining reporting of malaria cases by county health officers, and in several States they are thus becoming more interested in locating their principal malaria foci.

As an aid to more accurate diagnosis, 5,732 blood smears were examined at the laboratory at Memphis, Tenn., of which 613 were found positive.

A report was prepared on "Mortality from Malaria, 1919–1923."[5]

Rural malaria investigations.—Data collected in agricultural districts in many States indicate that farm owners in the past have been of the opinion that screening of farm tenant homes as a prevention measure was not practical.

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[5] Reprint No. 962, from Public Health Reports, Oct 10, 1924.

Experiments recently conducted by the service indicate that colored farm tenants can be induced to take excellent care of the screening of their homes. In a period of 10 months only one minor screen repair was needed to each three houses screened, and the repair was made by the negro tenant. These investigations are being continued and may have considerable bearing on malaria reduction among our colored farm population.

The study of creosote as a repelling agent for *A. quadrimaculatus* was continued. While it was not proved that in all instances it will keep Anopheles from entering treated rooms, yet it seems to keep them from remaining in houses. In 36 houses treated during six inspection visits to each house 19 Anopheles were found, while in 36 houses near those treated and inspected at the same time 551 Anopheles were found.

Investigations are being made to provide a more satisfactory method of compressed air application of oil as a larvicide for use on extensive areas in order to reduce the unit cost of oil and its application. Studies are being made of economic methods of improving use of fish control for ponds of intermittent character. The details of major agricultural drainage procedure are being studied and must be so modified that the lateral ditches will be less favorable as sources of Anopheles production.

Rough, volunteered malaria census determination methods for counties without health units have been worked out. A family malaria census card was sent to the head of each family having a child in the county district schools. The compiling of data thus received has indicated which sections of sparsely settled counties have the greatest malaria sick rate, has increased local interest in malaria elimination, and in some instances has caused drainage operations to be undertaken.

In the study of Anopheles habits, experiments were successfully made to induce Anopheles to leave their natural day-time resting places and collect in other places especially prepared for them to collect in. It is planned to continue this study with a view to having these mosquitoes destroy themselves.

A study was made of the significance of the proportion of sexes found among Anopheles in various resting places.[6]

Impounded water investigations.—The need of reduction of cost of control measures in lakes with many arms and indentations has made the continuation of impounded-water studies advisable. It has been found that fluctuation of water level is satisfactory and gives a perfect control measure under certain topographical conditions. The subject of flotage as a harboring place and protecting agency of Anopheles larvæ, and its economic control, needs further investigation.

Thirty-three lakes and ponds have been studied in Alabama, Virginia, North Carolina, and South Carolina.

Under conditions existing in the coastal counties of Virginia a 12 to 24-inch weekly fluctuation will generally prevent most of the Anopheles production in lake basins cleared of brush and trees if the water level is high and constant during cold months.

In lakes formed by impounding rivers of the rugged sections of Alabama similar results are frequently not obtainable, because of the presence of continuously collecting flotage.

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[6] Reprint No. 985, from the Public Health Reports, Jan. 16, 1925.

Special investigations and field studies.—In conducting these studies a field laboratory was located at Crowley, La., and later transferred to Greenwood, Miss. A field laboratory was also established at Savannah, Ga.

The epidemiological field studies included those of the amount and distribution of malaria prevalence in the irrigated rice-growing areas of Arkansas and Louisiana. The malaria rate, based on examinations, blood and spleen, of school children, plantation dwellers, etc., was low, although the Anopheles prevalence was high.

For comparison, a study of two and a half months was made in Honduras, where the malaria rate is continuously high and the Anopheles rate comparatively low (except during the rainy season).

It was desirable to study factors (nonanopheline) which tend to the reduction or increase of malaria and these studies are being continued in the Mississippi Delta cotton region.

The biological investigations included the study of factors which promote or diminish anopheline production. Character of water, natural enemies, and chemical composition of water were studied. Laboratory experiments were made, in which sterilized anopheline eggs and good organisms in pure culture were used. The studies also included investigations of habits of anophelines with respect to transmission of malaria, tests of larvicides, and mosquito repellents, and observations on the biology of *A. walkeri*, a species hitherto unrecorded in Louisiana.

The studies of a medical and technical nature included tests of the results of the use of quinine as a prophylactic on certain Central American plantations, and improved methods of collection and staining malaria parasites.

In the studies undertaken in Georgia it was determined that *A. quadrimaculatus* can develop from the egg stage to maturity in clear water in the absence of vegetation and that eggs of *A. quadrimaculatus* and *A. crucians* may withstand action of atmosphere and sunshine on dried mud in nature and hatch after being thus exposed at least three weeks. Studies were made in an effort to find a diagnostic blood picture of malaria in the absence of plasmodia.

NUTRITION

Material progress was made during the year toward the final completion of the analysis of the large amount of data collected in the field investigations of pellagra of 1917–1921 in certain cotton-mill villages of South Carolina. The preparation of a report on certain phases of this investigation was well advanced at the close of the fiscal year.

The field studies of nutrition of 1925 were a direct continuation and development of the field studies of pellagra. They were actively carried on throughout the year under the direction of Surg. Joseph Goldberger, in part at the Georgia State Sanitarium and in part in cooperation with the Hygienic Laboratory at the laboratory in Washington.

At the Georgia State Sanitarium the study of the pellagra-preventive value of dried skim milk and of dried brewers' yeast which was in progress at the close of the last fiscal year was completed, with results indicating that the dried milk may possess some pellagra-preventive action, but that the brewers' yeast is quite efficient as a pellagra-preventive.

As previously reported, clinical tests in the treatment and prevention of pellagra at the Georgia State Sanitarium with locally produced butter were without evidence of benefit. The favorable results in the treatment and prevention of the pellagralike disease of dogs with butter obtained by Professors Underhill and Mendel, of Yale University, in the cooperative research referred to in the report for 1924, suggested the desirability of trying butter obtained from the same source (Vermont) in the human disease. Accordingly, a supply of such butter was secured early in the year and later tried as a preventive of pellagra at the Georgia State Sanitarium, but was found no more efficient for this purpose than the local product.

At the Hygienic Laboratory the investigation of the pathological condition in the dog, known to veterinarians as black-tongue, was continued actively throughout the year. This study continues to yield evidence of a marked similarity to, and possibly of an identity with, human pellagra. As was mentioned in the last annual report, the study of this condition in the dog has yielded evidence of the therapeutic and preventive potency of dried brewers' yeast in this canine disease, and this led to its trial in human pellagra, with the outcome above indicated. On the other hand, tests of butter which had failed in pellagra seem to show that this may have black-tongue preventive potency of a low order, if any. Certain of the results of the investigations of pellagra at the Georgia State Sanitarium were embodied in a published report.[7]

This report included the results of the study of brewers' yeast. This aroused so much interest, both among physicians and veterinarians, and led to so many inquiries with respect to the dosage and mode of administration of this food in the treatment both of pellagra and of black tongue of dogs, that a brief summary statement covering these points was published.[8]

The cooperative arrangement with Yale University, entered into during the fiscal year 1923 for an investigation in the field of diet and nutrition, was continued throughout the present year and terminated at its close. A summary of the results of the research carried out under this arrangement by Professors Underhill and Mendel have been published.[9]

Industrial Hygiene and Sanitation

The activities of the office of industrial hygiene and sanitation were continued under the direction of Surg. L. R. Thompson. They included—(1) Studies of occupational health hazards. (2) Studies of occupational diseases. (3) Studies of the causes of industrial absenteeism. (4) Statistical studies. (5) Cooperation with Government departments. (6) Cooperation with industrial and other agencies.

1. SURVEYS OF OCCUPATIONAL HEALTH HAZARDS

(*A*) *Ventilation studies.*—As in the previous year, studies relating to ventilation were carried on by Associate Sanitary Engineer Leonard Greenburg, under the immediate supervision of Consulting Hygienist C.-E. A. Winslow, of Yale University. Three general investigations were carried on.

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[7] Reprints Nos. 895 and 984 from Public Health Reports, Jan. 18, 1924, and Jan. 9, 1925, respectively.
[8] Reprint No. 1009 from Public Health Reports, May 8, 1925.
[9] Reprint No. 1015 from Public Health Reports, May 29, 1925.

(1) Field studies of the comparative efficiency of the impinger dust-sampling device as compared with the Palmer apparatus and the konimeter.

(2) Studies of the effect of electrical charges on dusts of various kinds. These studies were made in an attempt to make more clear the differences in the physiological behavior of certain harmful and certain harmless dusts.

(3) A general field study on benzol poisoning, made in cooperation with the National Safety Council. The object of this study has been to determine the quantity of benzol vapor which, in the atmosphere of the workroom, leads to a chronic intoxication; and it is believed that the investigation has been successful in arriving at a figure which represents the limit of safety under such conditions. In addition to this investigation, detailed studies have been conducted as to the proper operation of ventilating processes in which benzol is used. The results of these studies will appear in an early issue of the Public Health Reports.

(*B*) *Dust in industry.*[10]—The study of dust in industry, which was carried on last year under the direction of Surg. J. F. Worley, has been continued under the direction of Asst. Surg. A. E. Russell. The study of cement dust at Hagerstown, Md., has been completed, and covers a period of three years' observation. The report is in process of writing at the present time.

The study of metallic dust at Meriden, Conn., which will be finished in the early fall, covers a period of two years' observation.

A study of hard-coal dust at Wilkes-Barre, Pa., which will be completed during the coming fiscal year, will represent two years' observation on approximately 730 underground miners.

In the study of silica dust at Barre, Vt., the total number of employees under observation has reached 877.

In each of these studies the same character of physical and chemical analysis has been made of atmospheric dust conditions. The final report on the cement plant showed the atmosphere to be contaminated with considerable amounts of dust. Of 74 determinations 58, or 78.24 per cent, showed over 8,490,000 particles per cubic foot of air. Different processes in the manufacture of cement in this particular plant showed wide differences in the amounts of dust, varying from 1,146,000 particles (less than 10 microns in diameter) per cubic foot of air, in the coal house, to a maximum of 105,630,000 particles per cubic foot in the raw cement mill.

The study of metallic dust showed that 60 per cent of the total of 258 determinations exceeded 1,775,000 particles per cubic foot of air, and that of a total of 411 employees exposed to dust, 78 per cent were exposed to the worse conditions.

In the study at Barre, Vt., of 120 determinations, 80 per cent fell within the group classed by South African investigators as unsatisfactory as regards dustiness; and of 705 men employed at the time of the survey, 65 per cent were found using pneumatic tools, and at least 77 per cent were constantly exposed to dust exceeding 8,490,000 particles per cubic foot.

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[10] Reprint No. 990 from Public Health Reports, Feb. 13, 1925; Reprint No. 1004 from Public Health Reports, Apr. 17, 1925.

(*C*) *Studies in illumination.*—Although the investigations on the effect of illumination on eyesight and production carried on in the New York post offices during the past three years[11] under the direction of Physicist James E. Ives, showed a decided increase in the speed of working when the illumination was increased, it was felt that further studies should be made to determine more accurately the degree of this increase, to ascertain whether the latter is sustained when the illumination is maintained, and to investigate further a certain lag in production which had been observed, the production not immediately rising or falling to its final or its initial value when the illumination was increased or decreased. Further studies have therefore been begun in the mailing division of the Chicago general post office, in which there are about 90 letter separators working. Through the kindness of the Supervising Architect's Office, a new and desirable system of lighting has been installed, in which the illumination may be increased or decreased at will, and the tests are now in progress. Eye examinations of the workers are made periodically, and an apparatus has been devised to measure speed of vision, in an attempt to determine, by measuring the speed of vision at the beginning and the end of work, the effect of the degree of illumination upon eye fatigue.

With the daylight recorder, consisting of a Case photoelectric cell and a Leeds and Northrup recording potentiometer, which has been installed in the Office of Industrial Hygiene, continuous hourly records have been obtained of the amount of daylight in Washington for almost a year. These records have been of great value in studying problems of the daylight illumination of buildings in Washington, and are also expected to be of use in connection with the study of the relationship between daylight and health, and for other purposes.

(*D*) *Tetraethyl lead.*—Following a number of deaths at the Bayway plant of the Standard Oil Co. of New Jersey which resulted from the manufacture of tetraethyl lead fluid, requests came from many quarters for the Surgeon General to hold a conference at which the public health and industrial hazards in the manufacture, distribution, and use of tetraethyl lead fluid and tetraethyl lead gasoline could be discussed.

As the matter seemed to be of both industrial and public health importance, the conference was called by the Surgeon General on May 20, at which all experimental data bearing on the subject were presented and discussed by the conference. At the termination of the conference a resolution was adopted requesting the Surgeon General to appoint a committee composed of "seven recognized authorities in clinical medicine, physiology, and industrial hygiene to present to him by January 1, 1926, a statement as to the health hazard involved in the retail distribution and general use of tetraethyl lead gasoline motor fluid." The committee appointed by the Surgeon General consisted of Dr. David L. Edsall, Dr. William H. Howell, Dr. A. J. Chesley, Dr. Julius Stieglitz, Professor C.-E. A. Winslow, Dr. Waller S. Leathers, and Dr. Reid Hunt. During the several meetings which this committee has held, a general plan of work has been outlined which will be carried on by the Public Health

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[11] Public Health Bulletin No. 140 and Reprint No. 973 from the Public Health Reports, Nov. 14, 1924.

Service. These field studies will be under the direction of Surg. J. P. Leake.

2. STUDIES OF OCCUPATIONAL DISEASES

(*A*) *Physical condition of persons engaged in measuring radium emanations.*—This study, which was referred to in the last annual report, has been continued during the present year, and observations have been maintained on a group of approximately 13 persons over a period of two and one-half years. These observations, which have been carried on by Surg. R. C. Williams, have been of particular importance in the course of the past year because of several deaths and a number of cases of illness among workers using luminous paints for clock dials.

(*B*) *Investigation of the chemical and physiological aspects of industrial fatigue.*[12]—Surg. W. S. Bean has been placed in charge of this work, and it is planned to observe, in cooperation with the United States Navy, the actual condition of workers exposed to high degrees of temperature and humidity during the speed trials of naval vessels.

(*C*) *Posture in industry.*—The first section of this work to which reference is made in the previous annual report, and which relates to the study of natural posture, has been completed and the data are being analyzed; the results will be submitted for publication during the coming year. These studies are under the supervision of Surg. Louis Schwartz.

3. STUDIES OF CAUSES OF INDUSTRIAL ABSENTEEISM

The plan to ascertain from records the amount of time lost in industry on account of sickness and to study the cost of disability has been continued during the year under the supervision of Statistical Expert D. K. Brundage. In continuance of the policy established several years ago, the investigations of industrial morbidity have been carried on jointly by the Office of Industrial Hygiene and Sanitation and the Statistical Office. Reports furnished monthly by employees' sick-benefit associations and by the medical departments of certain industrial establishments of cases of sickness and nonindustrial accidents causing disability for eight calendar days or longer are tabulated and analyzed annually, and the results are published in the Public Health Reports. In the four years for which these data have been available (1920–1923, inclusive), the frequency of influenza and grippe has been outstanding. In 1921, when there was no epidemic, the curve for influenza and grippe rose as high as the curve for all other respiratory diseases combined; and in each of the four years influenza caused a much larger number of claims upon the funds of industrial mutual associations than did any other disease.

By comparing the sickness experience of the employees in each reporting establishment with the average morbidity frequency, a high incidence rate for certain other diseases was found in different factories, and even in whole industries. Thus, in the iron and steel industry, in 1923, the frequency of pneumonia was 122 per cent in excess of the rate for employees in the other reporting industries. This fact suggested the desirability of a detailed study of all the pneumonia morbidity and mortality data available for iron and steel workers. A paper on the subject was prepared, but will not be published until the data for the year 1924 can be added. Among other things, it was found that the excess was greatest in the early winter of each year, and again in the spring, but that at practically all other times, as well, the disease occurred more frequently among steel company employees than among the other workers included in the study.

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[12] Reprint No. 1008 from Public Health Reports, May 1, 1925.

In an endeavor to ascertain whether the races or peoples employed in largest numbers in the industry manifest special predisposition or susceptibility to pneumonia, the data collected from the records of the Employees' Benefit Association of the International Harvester Co. in 1921 were of considerable value, since information in regard to pneumonia morbidity according to race or nationality is rarely available. The racial factor apparently does not explain the high pneumonia rate in the steel industry. From the rates obtained from sample groups of the industrial population, it is estimated that iron and steel workers in this country, numbering approximately 500,000 persons, contract 1,200 more cases of pneumonia annually than do the same number of employees in such industries as paper manufacturing, the rubber, chemical, abrasive, and textile industries, and the public utilities.

The morbidity records of the Edison Electric Illuminating Co. of Boston, covering all disabilities lasting one workday or longer and extending back to 1913, are being tabulated and analyzed from two different points of view—(1) from the point of view of attempting to measure by proper statistical methods the influence of industrial medical service upon the frequency and severity rates of disabling sickness; (2) from the standpoint of studying the incidence or duration of different diseases over a period of years, with special reference to severity at different seasons of the year, trend in sickness frequency, nature of the sickness in different occupations, and other inquiries which may be suggested by the preliminary results.

4. STATISTICAL STUDIES

In association with the statistical office and under the direction of Associate Statistician Rollo H. Britten, considerable time was given to the statistical aspects of studies previously mentioned. The major piece of research, however, was the analysis of physical examinations made in the course of surveys in 10 industries, a study continued from the previous year. Analysis of data on posture prior to entrance into industry was begun, but no conclusions are yet available.

Study of physical condition of 12,000 industrial workers.—A comprehensive bulletin embracing the study of physiological measurements, defects, and diseases, and certain miscellaneous phases, has been prepared. It will be submitted for publication early in the coming year.

Although no outstanding facts with respect to industrial hazard were disclosed by the analysis, a clearer understanding of the place of the physical examination in industrial hygiene was obtained and numerous interesting relations of a physiological and anthropological nature were established or confirmed. These can only be touched upon:

(*a*) Racial composition varied with the industry. Races characteristic of the older immigration (English, Irish, German) predominated in certain employments, typical of which were pottery, post office, and glass. Races characteristic of the newer immigration (Italian, Polish, Russian-Austrian) predominated in other industries (chemical and steel). With the former group go an advanced average age, a long length of service, a low percentage of foreign-born, a low percentage of unskilled labor, and an American group descended largely from the older immigration races.

(*b*) Some important industrial differences were brought out, but as the surveys were made by several groups of examiners for quite dissimilar purposes, such points had to be accepted with caution. The post office gave a definitely lower percentage of persons with normal vision—interesting, in view of the eye strain among mail separators. A large percentage of over or of under average weight was noted in the foundry and in some other industries, because of the selection of individuals for arduous labor. Specific hazards were found in some industries (for instance, lead poisoning, in the pottery industry, and brass founders' ague, in the brass foundry), and some of these were reflected in the physical examinations.

(*c*) Among industrial workers systolic blood pressure was found to rise rather rapidly with age, while diastolic pressure rose at first, but tended to reach a horizontal line in late industrial life. A correlation was found between blood pressure and pulse rate, and between blood pressure and under and over average weight. Clerical workers had a lower blood pressure than others. Altered blood pressure occurred among persons with certain defects and diseases, notably, arteriosclerosis and tuberculosis.

(*d*) An average pulse rate of 81 beats per minute, much higher than that usually accepted in textbooks, was observed. The pulse rate of a group of workers without defects which might be expected to affect the general health was definitely lower, but was still higher than the accepted figures. Excitement may have been one of the reasons for these high rates. However, general conceptions of pulse rate have been obtained from records of patients in bed or convalescing, while the pulse rates in this study must be thought of as averages for active industrial workers in reasonably good health. Wide variations in pulse rate between one person and another were manifest, 1.4 per cent being under 60, and 2.1 per cent over 110. Pulse rate did not rise or fall with age among industrial workers. Many diseases, such as heart defects and tuberculosis, were associated with changes in pulse rate.

(*e*) Determination of vital capacity and chest measurements brought out some interesting relations, as, for instance, the rise in chest measurement with age and the fall in chest expansion.

(*f*) The English, Irish, and German races were the tallest, and the Italian, Polish, and Russian-Austrian the shortest. On the other hand, the latter were stocky and the former relatively slight in build. Stockiness was determined by taking deviations from average weight for a specific height and age; and this procedure brought out numerous points of interest in relation to nutrition, diseases and defects, and other phases of health.

(*g*) The Snellen test gave interesting results. It was shown that there is an acceleration in the rate of deterioration of vision of workers between 40 and 50 years of age.

(*h*) Analysis of the records of defects and diseases was complicated by a number of factors, such as differences in the medical personnel, interest of individual physicians in special diseases, varying problems in different surveys, and interpretation by the physicians as to whether or not a disease or defect existed. However, much of interest was found. The prevalence of various diseases and defects at different ages seemed of extraordinary extent. No data of this character have previously been available. Many other significant phases of physical condition were brought out by the analysis.

5. COOPERATION WITH OTHER GOVERNMENT DEPARTMENTS

Post office.—Studies of the presence of carbon-monoxide poisoning in workers in the post-office garage in Washington were made, and further tests to determine the most efficient intensity of lighting in post offices were continued.

Bureau of Standards.—Studies were made of employees exposed to emanation of radium, and an investigation was begun of arsenic poisoning in workers experimenting in spraying of metals.

Bureau of Mines.—Studies of mine sanitation were carried on during the fiscal year by the Bureau of Mines, Department of the Interior, the medical personnel being detailed from the Public Health Service to that bureau for this purpose. Surg. R. R. Sayers was in charge as chief surgeon of the Bureau of Mines.

Due to an increased demand for information on the method of detecting carbon monoxide used by the Bureau of Mines, papers on the pyrotannic acid method, which were published as Bureau of Mines Reports of Investigations and in the Public Health Reports, were revised and a description of symptoms of carbon-monoxide poisoning and methods of treatment were added.

The investigation on the physiological effects of abnormal conditions of temperature and humidity, which for several years has been carried on by the Bureau of Mines in cooperation with the Public Health Service and the American Society of Heating and Ventilating Engineers, under the direction of Doctor Sayers and Mr. Fieldner, is nearing completion. The conclusions drawn from these studies were published in the Public Health Reports for December 5, 1924.

Under the direction of Doctor Sayers and Messrs. Fieldner and Yant, studies of the possible health hazard from the use of gasoline to which tetraethyl lead had been added were carried out at the Pittsburgh station of the Bureau of Mines, in cooperation with the Ethyl Gasoline Corporation. Investigations were made of the following: (1) The hazard in manufacturing and handling concentrated tetraethyl lead; (2) the possible hazard in handling ethyl gasoline (approximately 1 part of tetraethyl lead to 1,300 parts of gasoline); (3) the possible hazard due to exhaust gases from automobiles using ethyl gasoline. A preliminary report on this work is contained in Reports of Investigations (Bureau of Mines), Serial No. 2662, December, 1924. A second progress report was made to the tetraethyl lead conference called by the Surgeon General on May 20, 1925. A summary of these studies is contained in the Annual Report of the Bureau of Mines.

An investigation of the industrial aspects of the disposal of phenol wastes without damage to water supplies was begun during the past year. This study was undertaken at the request of the conference of State health officers on phenol wastes.

Other studies on the following subjects have been continued: Lead poisoning (mining lead carbonate) in the mines of Utah; the physiological effects of dust and ventilation in mines; synthetic atmospheres in caisson disease. Detailed reports of these investigations will be found in the annual report and technical papers of the Bureau of Mines.

6. COOPERATION WITH INDUSTRIAL AND OTHER AGENCIES

The actual amount of work in the consulting service has increased materially during the year, and many requests for information and advice were received. These requests have come largely from industrial establishments and industrial workers and cover a wide variety of subjects relating to industrial hazards, industrial medical service, and industrial morbidity.

Work has been done on the industrial sanitary code, for which the Public Health Service is sponsor; but the code has not as yet been approved by the committee.

In cooperation with the American Red Cross, the Bureau of Mines, the Association of American Physicians and Surgeons, the National Electric Light Association, the American Gas Association, and other industrial associations and certain universities, the Public Health Service has endeavored to standardize the prone pressure method of resuscitation in a way which will be satisfactory to all the various industrial associations in which resuscitation is an important method of treating accidental shock.

Cooperation with the Optical Society of America to determine the standardization of color terminology, and with the National Research Council, in an investigation of the relation of the quality and quantity of illumination to efficiency in industry, has been continued during the year.

Administrative Health Practice

The studies of administrative health practice have been continued under the direction of Surg. Paul Preble. During the present year the activities of this office have been confined chiefly to consideration of municipal health services. Surveys of health organization and practice in force in the 100 largest cities in the United States were compiled during the calendar year 1924. A report on municipal health department practice based upon these surveys is in preparation at the close of the present year. This report supplements that contained in Public Health Bulletin No. 136, giving information collected by the committee on municipal health department practice of the American Public Health Association in cooperation with the Public Health Service, in a survey of 83 cities relative to their practice in administering health activities. The authors invited to prepare material for this report were selected with the view of securing the judgment and criticisms of recognized authorities who have attained prominence in the public health field. In addition to a critical review of the existing health service in each city, each author has been requested to prepare an outline of what in his opinion represents the ideal plan of organization for the particular activity assigned to him, in terms of the best current practice from the point of view of the health officer. Consideration will be given also to the activities of voluntary health agencies and their relation to the official agency.

Compared to conditions existing a decade or two ago, the surveys of 1924 yield some grounds for encouragement. There are still remaining, however, many indications of defective administration, unprofitable procedures and too many inconsistencies in the methods and practices now in effect. These surveys have served to point out the lack of proper balance in many instances and to call attention to overlooked or neglected opportunities.

A central bureau of information is being established for the purpose of bringing together the experiences of large groups of cities for cooperative study so that individual experiences and practices can be evaluated in terms of common experiences.

The field surveys provide data that serve as a basis for this information service.

MILK

The milk investigations of the service were continued under the direction of Associate Sanitary Engineer L. C. Frank, with headquarters at Montgomery, Ala.

The work has included the following:

(1) *Investigation of the possibility of unifying milk control in the United States.*—By the end of the fiscal year 1924, two States, Alabama, and North Carolina, had adopted a standard milk sanitation program recommended by the Public Health Service. This was the first time that any two States had adopted the same plan of milk control. Hitherto no two States and hardly any two cities were handling their milk control problems in the same way. The lack of organization and uniformity served to bring milk sanitation into disrepute among both dairymen and consumers, and one of the investigations undertaken by the office of milk investigations was to determine the possibility of unifying milk control in this country. Efforts have been devoted to this end, and when additional States have indicated a desire to begin general state-wide milk sanitation work, the plan of unification has been discussed with them.

During the fiscal year 1925, six additional States have adopted the same standard program, namely, Virginia, Texas, Missouri, Kentucky, Tennessee, and South Carolina, making eight States in all.

It is believed that the unification of milk control, if accomplished, will (*a*) increase the respect of the dairy industry for milk sanitation, and bring about its willingness to comply with milk sanitation ordinances, (*b*) establish the confidence of the consumer in milk quality, and increase his consumption of milk, (*c*) make possible the periodic measurement of the progress of milk sanitation in the United States, and (*d*) make possible the comparative measurements of the milk sanitation status of cities.

(2) *Assistance to States in securing the enactment of the standard ordinance by their cities.*—By the end of the fiscal year 1924, seven cities had enacted the standard milk ordinance into municipal law. During the year 1925 the list of cities passing the standard milk ordinance has increased to 53. Most of these cities were visited

during the year and assistance was given to State and local authorities in promoting the passage of the ordinance.

(3) *Periodic measurement of the progress of milk sanitation in the United States.*—No effort to improve milk sanitation conditions would be complete without a measurement of the improvement attained. Accordingly, studies conducted last year developed a method of measuring the milk sanitation status of cities.[13]

During the fiscal year 1925, milk sanitation ratings of 21 cities in Alabama and Virginia were determined, and this work will be continued until it is completed for each of the various States entering the program for the unification of milk control.

Incidentally, the work of determining the milk sanitation ratings of the cities has been of material assistance to cities which have not yet attained a high grade of milk control in that it has served as a course of instruction to local health officers and inspectors in modern methods of control.

The determination of these ratings should be repeated at intervals in order to have available an accurate measurement of the progress attained in milk sanitation, to serve as local encouragement to continued improvement, and to enable local health officers to know how the milk sanitation attained in their respective cities compares with that in other cities.

(4) *Studies of the prevalence of milk-borne outbreaks of disease.*—During the year the studies of the prevalence of milk-borne outbreaks of disease were continued. These studies resulted in reports of 111 outbreaks for the six-year period 1918 to 1923, inclusive, and 44 outbreaks for the year 1924. A paper on "The diagnosis of milk-borne outbreaks of disease" is now in preparation.

Child Hygiene

Field investigations in child hygiene were carried on under the direction of Surg. Taliaferro Clark, and included research in special problems of child health and studies in child-health administration and health education in the public schools.

CHILD HYGIENE IN HAGERSTOWN, MD.

The child-hygiene studies carried on in connection with the Washington County Health Demonstration were continued throughout the fiscal year, in cooperation with the Maryland State Board of Health, the Washington County Public Health Association, and the Johns Hopkins School of Hygiene and Public Health.

Scope.—Investigations covering the year's work included (*a*) Investigations into the effect of intensive health supervision of a group of children during a protracted period; (*b*) studies of oral hygiene; (*c*) studies of morbidity (disease incidence) among school children; (*d*) studies of physical development; and (*e*) studies of nutrition. These nutrition studies were discontinued in December as it was felt that sufficient data on the particular phases of the subject under consideration had been accumulated for present requirements.

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[13] Reprint No. 971, from Public Health Reports, Nov. 7, 1924.

Physical defects.—During the school year 3,140 children were given complete physical examination, 2,238 of whom were children who were first examined in 1921–1924. The latter group, comprising children under protracted observation, is assuming a size which will furnish a valuable basis for the study in progress.

The results of the examination of vision corroborate the findings of the previous year, namely, that the total amount of defective vision in the group of children did not increase with advancing school age. Of the new entrants, 35.2 per cent were found suffering from more or less visual defect, and 27.6 per cent in the older group. Of serious defects of vision, 9.7 per cent was found in the new entrants and 9.1 per cent in the re-examined group.

A careful analysis of the results of the physical examinations showed that diseased tonsils, cervical adenitis, dental malocclusion, gingivitis, and organic heart defect were more prevalent among the poorly nourished children of this group than among the well nourished.

Oral hygiene.—A complete examination was made of the mouth of each child who was given a physical examination. The defects observed and the percentage of each in the number examined were as follows:

Carious temporary teeth	75. 9
Carious permanent teeth	64. 3
Missing permanent teeth	9. 7
Gingivitis	17. 3
Fistulae (gingival)	2. 4

In addition to the dental examination, a number of lectures on oral hygiene were given, reaching many students, teachers, parents, dentists, nurses, and club men and women.

Incidence of sickness.[14]—The mordidity census of school children was continued and a study was made of the morbidity data collected in 1923–24. Five thousand and twenty-one white school children were under observation for a part or the whole of the 1923–24 school term. It was found that there were 2,420 cases of sickness per 1,000 children, or 2.4 cases per child. The common cold stands out prominently as the most frequent cause of illness among school children, its frequency being more than twice as great as that of any other illness. However, the incidence of colds and influenza was somewhat less in 1923–24 than in the previous year. The highest incidence of the respiratory diseases occurred in March in 1922, in February in 1923, and in January in 1924.

It was found from data for the school months, December, 1921–May, 1923, that approximately 4 per cent of the total possible days of school attendance was lost on account of sickness.

Physical development.—A group of over 2,800 children, distributed among the first eight school grades, was used for the purpose of studying physical development as expressed in increments of weight and height. This group was weighed at intervals of one month, and standing height and two sitting heights (methods of Dreyer and Hrdlicka) were taken at approximately six-month intervals. Over 17,000 height measurements were secured during the school year.

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[14] Reprint No. 993, from Public Health Reports, Feb. 27, 1925.

STUDIES IN NATURAL ILLUMINATION OF CLASSROOMS

The observation of conditions harmful to the visual health and comfort of school children led in the preceding year to a determination to make a special investigation of the natural lighting of classrooms with a view to studying accepted standards and the factors by which they may be modified. During the period of the study, September, 1923, to June, 1924, the approximately 50,000 observations of natural illumination of selected classrooms and allied conditions made at Hagerstown, Md., comprised observations of (1) the intensity of outside illumination, (2) sky brightness at an angle 90° from and opposite the sun, (3) the kind and degree of cloudiness, (4) the relative humidity, (5) temperature, and (6) the intensity of illumination at selected stations in the classroom,

The conclusions which are apparent at the stage to which the computations have been carried are as follows: (1) The illumination on some of the desks is quite inadequate under certain conditions; (2) the so-called "inside-outside" ratio is not constant.

Since daylight illumination is not the same for all hours of the day nor for all conditions of sky cloudiness, and is also dependent upon the construction of the room, including the area and height of the windows, it is important to observe not only the adequacy of illumination at a certain time, but also the length of time during which the illumination is adequate. These studies were made in a new school building constructed in accordance with modern ideas of architecture. The usually accepted standard for illumination of schoolrooms is a minimum of about 5 foot-candles, some authorities recommending a minimum of 8 foot-candles.

On some of the desks the light was inadequate a considerable part of the time. As an example, a desk situated near the southwest corner of a room having an exposure of 30° south of east may be taken. On this and other desks observations were made hourly from 9.40 a. m. to 3.40 p. m. on practically every day for a number of months. Of the 1,416 observations made in that period on the particular desk in question, 289, or 20 per cent, showed an illumination less than 5 foot-candles, and 593, or 42 per cent, showed an illumination less than 8 foot-candles. The inadequacy was greater at certain hours of the day and in certain months; but for every hour of the day and in every month except October at 11 and 12 o'clock, there were some observations below 5 foot-candles. In January the illumination at this desk at 3.40 p. m. at times when no clouds were present averaged only 4 foot-candles; and when the sky was totally overcast the average was only 1½ foot-candles. The average illumination at this desk at 3.40 p. m. when the sky was totally overcast was less than 5 foot-candles for every month from October to April.

CHILD HYGIENE IN THE DISTRICT OF COLUMBIA

Studies of the vision of school children.—In cooperation with the health department and the board of education of the District of Columbia, an intensive study of the vision of children in the Washington public schools has been made during the fiscal year, from October 15 to June 30. This study was undertaken for the purpose of securing definite information with regard to (1) the incidence of visual defect in school children, (2) the significance of varying degrees of refractive error, (3) the progressive changes in the axial length of the eyeball with advancing age, (4) the degree of myopia that may be considered to demand special educational methods, and (5) the significance of Snellen test readings in terms of actual refractive error.

These studies are necessarily slow, but owing to the excellent cooperation of parents, teachers, and pupils it has been possible to test 861 children for refraction, for color sense, and for visual acuity before and after the use of a cycloplegic. These studies are still in progress, and valuable data are being accumulated.

COOPERATION WITH THE GIRL SCOUT ORGANIZATION

On the request of the director of the Girl Scouts of the District of Columbia, the child-hygiene office continued the physical examination of girls who registered for attendance at the Girl Scouts' camp. At the close of the year 164 examinations had been made.

CHILD HYGIENE IN ILLINOIS

The survey of mentally and physically handicapped children in which the Public Health Service cooperated in the preceding year with the State Institute for Juvenile Research, on request of the Illinois State Department of Public Welfare, was continued during this fiscal year.

The examination of the inmates of the State Schools for Girls and Boys, at Geneva and St. Charles, Ill., was completed during the summer.

On September 15, 1924, the physical examinations of the school children of Du Page County were begun. This work was a continuation of the survey made in Alexander County during the spring of 1924.

During the year 66 schools were visited, and 8,287 children were studied.

A large amount of data on mental and social problems collected by the Illinois State Institute for Juvenile Research has been placed at the disposal of the service, and preliminary work on these and the physical data has already begun. An intensive study of the material will be made and a special report prepared as soon as possible.

RESEARCH IN HEALTH EDUCATION

Because of the great practical importance of educating children in health and the rapid extension of health teaching in the schools throughout the country, a study was undertaken of the courses in health education and related material issued by the several State departments of education. This material was carefully analyzed, particularly from the standpoint of the health content. The conclusions and recommendations embodied in the report based on this study[15] covered the following subjects: (1) School health education program; (2) terms in use to designate State school health programs;

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[15] Public Health Bulletin No. 152.

(3) scope of school health education; (4) health habit training; (5) the content of health instruction; (6) subject matter on physiology; (7) subject matter on community hygiene; (8) health examination and inspection; (9) physical training in the health program. It was found that, as regards the content of health instruction, the most common defects to be guarded against are the following: Overcrowding with subject matter; including information not within the range of the child's experience; including unessential and impractical information; misinterpreting scientific facts.

MENTAL HEALTH

Field investigations of mental health under the direction of Surg. W. L. Treadway were continued with headquarters at Boston, Mass., in the Harvard Medical School. Further studies have been made on the subject of immigration and its relation to mental health, especially with respect to the development of mental disorders among the foreign-born population of the United States.

Previous studies have shown that certain racial groups in the United States stood out as being peculiarly liable to develop certain types of mental diseases. In an attempt to understand better this relationship, an epidemiological study with regard to alcoholism, begun during the previous fiscal year, was completed by this office and submitted to the bureau. This study was concerned especially with mental disorders produced by indulgence in alcoholic beverages.

The new work inaugurated during the course of the year concerned itself with a further epidemiological study of mental diseases, specifically with regard to mental diseases occurring in the city of Boston during the years 1920 and 1925. The purpose of this study is to throw more light upon the reasons for the high proportion of foreign-born admissions to public institutions for mental diseases. An attempt is being made to ascertain whether or not foreign-born persons are more prone to accept the services of public institutions and whether or not native-born persons exhaust the facilities of the community before resorting to such institutions. This is an exceedingly important question from the standpoint of immigration and may be the means of contributing some important results to the understanding of mental diseases among our foreign-born population. This study will also contribute to a better understanding of the conditions under which mental disorders occur in urban populations, and of the factors which are instrumental in persons seeking relief from the public treasury.

Through the cooperation of the State department of mental diseases, the Boston department of health, and the State department of institutions, necessary arrangements were made and work was begun on the compilation of data relative to cases admitted to public and private institutions in Massachusetts during the years 1920 and 1925.

In April the medical officer in charge of mental hygiene investigations was relieved from duty at his station and directed to proceed to Cobh, Ireland, to assist in carrying out the United States quarantine regulations applicable to ships and personnel destined for United States ports. In addition to this detail, he was also directed to represent the United States as a delegate to the International Neurological Congress, held in Paris, May 25 to 30.

During this detail abroad opportunity will be afforded to make observations relative to the status of care of mentally diseased persons in Ireland, the incidence of the different types of mental disorders, and the practicability of making mental examinations abroad. It is hoped that at some future date these observations may be used to supplement the observations being made in Boston at the present time, as it is believed that they would demonstrate some of the factors instrumental in the migrations of people from Europe and serve in developing recommendations looking to practical measures for the prevention of mental diseases among foreign-born residents of the United States.

Statistical Office

The statistical investigations were under the general direction of Statistician Edgar Sydenstricker and included studies carried on in the statistical office independently, for other offices, and in collaboration with other investigations of the division of scientific research and with other divisions of the service.

While the activities of the office of statistical investigations have followed generally the lines laid down when it was established in 1920, the tendency has been toward (*a*) a distinct tabulating unit equipped with card-punching, sorting, counting, tabulating, and calculating machinery and a small force of trained operatives and statistical clerks, to be at the service of the various research offices; (*b*) a small statistical staff engaged in epidemiological studies of a statistical nature on specific subjects, and assisting in technical ways when called upon; and (*c*) the furnishing of properly trained statistical personnel to other offices, or the establishment of such personnel within these offices apart from the office of statistical investigations. The entire statistical staff, however, has functioned as a unit, interchange of clerical force and collaboration between the technical personnel being effected whenever the nature of the specific work and economical administration has permitted.

I. OFFICE OF STATISTICAL INVESTIGATIONS

Study of morbidity in a general population group.—The field work in the study of illness incidence in a general population group in Hagerstown, Md., which terminated in March, 1924, was carried through the second stage—the editing and coding of the data preparatory to mechanical tabulation. In all, about 20,000 cases of illness were recorded for a population of about 8,000 white persons of all ages for a period of two and one-third years. The first paper based on the results of this study was published under the title "The Incidence of Illness in a General Population Group." [16] Further reports are in preparation, and the data will be used also in connection with epidemiological studies on specific diseases.

The studies of morbidity among industrial workers.—These studies, which have been under the immediate direction of Statistical Expert Dean K. Brundage for the past five years, have been transferred to the office of industrial hygiene and sanitation, the statistical office furnishing most of the clerical personnel for the work and collaborating in analysis of the records and the preparation of the reports. A report on these studies will be found on pp. 29–30.

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[16] Reprint No. 989, from the Public Health Reports, Oct. 31, 1924.

Classification of causes of sickness.—Upon the invitation of Mr. Magnus W. Alexander, president of the National Industrial Conference Board, a committee was convened to consider the question of a standard classification of diseases which cause disabling sickness among industrial workers. A list was prepared of causes of sickness, which was put forth as a tentative classification, based upon the International List of Causes of Death.[17] The committee recommended that the further development of this list be placed in the hands of the Public Health Service, and a service board was appointed to consider the question.

The board consisted of Senior Surg. Taliaferro Clark, chairman; Surg. J. P. Leake, Surg. L. R. Thompson, members; and Statistical Expert Dean K. Brundage, recorder.

The development of a general list of the causes of morbidity, rather than of industrial morbidity only, has been undertaken by this board.

Statistical study of scarlet fever.—This study was begun on January 2, 1925, by Assistant Statistician Dorothy G. Wiehl and will be presented for publication early in 1926. It includes a review of the epidemiological literature on scarlet fever in the principal countries, its geographical distribution in the world, and particularly in the United States; an analysis of its chronology from the point of view of the general trend, cyclical or periodic variations, seasonal prevalence, and variations in case fatality; the incidence of cases, deaths, and case fatality among persons of different sex, age, and race, urban and rural conditions, etc.

Statistical studies of mortality from tuberculosis.—A second paper on the course of mortality from pulmonary tuberculosis by Associate Statistician R. H. Britten and Statistician Edgar Sydenstricker was practically completed. This paper carried forward the analysis of the variations in the disease until the end of 1924, and shows that, after eliminating cyclical and seasonal variations and the effect of the influenza epidemics, a definite descent to what appears to be a new low level occurred, and suggests that a new trend has become established, about which the usual periodic and seasonal variations fluctuate. A third paper, which is almost completed, is a presentation of the changes in the sex-age curves for tuberculosis, and points out that the same phenomenon which occurred in certain European countries where there was a rapid industrial development, followed by an adjustment of living and working conditions, is manifesting itself in the United States. A fourth paper, in preparation, deals with mortality from tuberculosis during the recent epidemics of influenza. These papers are preliminary to a statistical study of tuberculosis mortality during 1908–1912 among persons of both sexes and different ages, races, and environmental conditions. The studies have been in progress for some time. The results of this more extended study, which will be ready for presentation in 1926, relate principally to the conditions correlated with the variations in death rates in early adult life and in middle age. The death rate among males of the ages 30 to 59 in urban parts of States was found to be the chief variant; since this pointed to the probability that occupational conditions were involved, the study has been extended to the large cities.

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[17] Reprint No. 1006, from the Public Health Reports, Apr. 24, 1925.

Morbidity from respiratory diseases.—The morbidity records obtained in field studies and through the cooperation of industrial establishments have afforded an accumulation of data on the incidence of respiratory diseases in observed population groups, some of them extending over a period of 12 years. These are of especial interest, not only because they include several epidemics of influenza, but because they make available for the first time certain epidemiological data on various types of respiratory diseases. A preliminary analysis of these records was begun with the collaboration of Associate Statistician Collins and Statistical Expert Brundage. It is planned to present a report before the end of 1925. The chief purpose of the study is to discover what chronological and age differences appear in the various kinds or types of repiratory illnesses, such as "colds," tonsillitis, sore throat, bronchitis, pneumonia, and influenza.

Statistical study of tonsillitis.—Utilizing the morbidity records which have been collected in various ways, and records of physical examinations of school children and industrial workers, a more detailed and comprehensive statistical study of tonsillitis and tonsil conditions in relation to sex, age, physical condition, etc., has been partially completed in collaboration with Assistant Statistician Collins.

Miscellaneous.—In addition to the specific studies referred to above, a number of other pieces of work were completed during the year. Among these may be mentioned the following:

Monthly reviews were prepared on the current world prevalence of disease, summarizing the Monthly Epidemiological Reports of the Health Section, League of Nations' Secretariat. These reviews have appeared regularly in the Public Health Reports since April, 1924.

A statistical study was made of the results of vision tests of 4,862 native white school boys and 6,479 male white industrial workers in the United States.[18]

The series of papers on the "Frequency of Disabling Illness Among Industrial Workers" was continued.[19]

A study was made of the variations in economic status at different stages of family life based on records collected in the course of field investigations of pellagra in South Carolina cotton mill communities.[20]

A paper entitled "A Study of the Incidence of Disabling Sickness in a South Carolina Mill Village in 1918," [21] was prepared, based on records collected in field investigations of pellagra, and referring particularly to the relation of the prevalence of ill-defined diseases in the spring, to pellagra.

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[18] Reprint No. 979 from Public Health Reports, Dec. 19, 1924. *See also* Reprint No. 975 from Public Health Reports, Nov. 28, 1924.

[19] Reprint No. 969 from Public Health Reports, Oct. 31, 1924.

[20] Reprint No. 947 from Public Health Reports, Aug. 22, 1924.

[21] Reprint No. 938 from Public Health Reports, July 18, 1924.

II. WORK IN ASSOCIATION WITH OTHER OFFICES AND DIVISIONS OF THE SERVICE

A considerable part of the work of the office of statistical investigations was the rendering of assistance, when called upon or otherwise directed, to other investigations in the division of scientific research, and other divisions of the service. Two-thirds of the time of the statistician in charge and 35 per cent of the time of the remainder of the staff (after making allowance for interchange of statistical personnel between the various offices) were devoted to this purpose. This cooperation comprised the following: (1) Technical advice and criticism on statistical procedure; (2) assignment of statistical personnel to assist other statistical units; (3) use of mechanical equipment and operators.

The major part of this work has been with the following offices and divisions:

1. In the division of scientific research, with field investigations of child hygiene, of industrial hygiene and sanitation, of nutrition (on pellagra), diphtheria, interepidemic influenza and minor respiratory diseases, cancer, goiter, trachoma, and mental hygiene.

2. In the division of venereal diseases, the statistical compilations of current reports on venereal diseases from State health departments and clinics have been carried on under the supervision of the office of statistical investigations.

Special tabulations were made of venereal case reports according to color, sex, age, and marital conditions, the reports having been furnished by the health departments of four Southern States. The analysis of these tabulations were completed by Assistant Statistician LeBlanc, and published as Venereal Disesase Bulletin No. 78, under the title "Venereal Disease Incidence at Different Ages in Certain Southern States," This was one of a series of papers on the same subject.

3. The office of statistical investigations collaborated with the division of sanitary reports and statistics, and the hospital division, on a number of routine matters.

The detailed reports on the statistical phases of the work of other units and divisions with which this office collaborated are included in their several reports.

III. COOPERATION OUTSIDE THE SERVICE

Six fellows of the International Health Board and other students, chiefly from foreign countries, who were engaged in pursuing studies at various institutions in the United States, were assigned to the office of statistical investigations for periods varying from two to six weeks to observe methods and procedure.

STREAM POLLUTION

During the past year, as for several years previously, investigations of stream pollution have been conducted under the general direction of Surg. W. H. Frost, with Sanitary Engineer J. K. Hoskins in immediate charge of the administrative office and field laboratory, located at Cincinnati, Ohio.

The general plan and scope of the studies are outlined each year with the advice of a group of special consultants consisting of Dr. Stephen A. Forbes, of the State Natural History Survey of Illinois, Dr. Edwin O. Jordan, of the University of Chicago, Mr. Langdon Pearse, of the Sanitary District of Chicago, and Mr. Earle B. Phelps, of Columbia University, who meet at Cincinnati once or twice each year for this purpose, and in the interim are kept informed of progress and are consulted individually on technical questions as they arise.

Under this general direction the laboratory and field work is organized in a number of units, all forming part of a general plan, but conducted more or less independently, each under the immediate direction of a responsible investigator.

With the exception of a study of sewage pollution in the southern end of Lake Michigan, which was taken up for special reasons, the studies now in progress are all developments in a general plan of investigation which has been pursued consistently since the original organization of stream-pollution investigations in 1913.

Quantitative studies of pollution and natural purification in large rivers.—Sanitary Engineer J. K. Hoskins has been engaged during the year in preparing a comprehensive report upon a study of the pollution and natural purification of the Illinois River, the field work upon which was completed during the fiscal year 1923. Owing to a temporary lack of assistance, the report has not yet been completed as had been contemplated, but will be ready for publication early in the next fiscal year.

Prior to the study of the Illinois River similar studies have been made upon the Potomac River (1913–14) and the Ohio River (1914–1916), reports upon which have been published. It is found that the results in all three studies show a general similarity with respect to—

(1) The quantitative relations between sewage discharge, as measured in terms of population contributing thereto, and the resultant immediate pollution of the receiving stream, as measured in terms of sewage bacteria and certain organic constituents added.

(2) The rates of natural purification, as measured by the decrease in sewage bacteria, the oxidation of organic matter, and the replacement of the dissolved oxygen thus used up by absorption of atmospheric oxygen.

The fact that these relations are similar in three streams of such diverse physical and biological characteristics as the Potomac, the Ohio, and the Illinois, establishes the presumption that the relations which are common to these streams are quite general and may be applied to other streams, or at least to other large rivers, in making estimates of future conditions and in planning extensive measures for the control of pollution. The next step is, therefore, to test this presumption by observations upon a considerable number of other streams. However, it is believed that this does not, at present, necessitate undertaking additional studies of such scope as those previously carried out, as it is probable that data sufficient to check the tentative conclusions arrived at will be available from the less extensive studies made by State and municipal authorities in connection with local sewage-disposal and water-supply projects. Consequently upon completion of a report upon the Illinois River studies, it is proposed to take advantage of the opportunities offered by such local studies for checking the validity and practical utility of the working formulæ which have been indicated. To the extent that these formulæ may be found applicable in such cases the purpose in view in studies of the Potomac, Ohio, and Illinois Rivers will have been achieved.

Experimental studies of the phenomena of natural purification.—In order to supplement the observations upon natural streams, which have served to indicate broadly the rate of certain processes of purification which take place in nature, attention has been devoted for several years to the development of experimental methods for studying the same phenomena more precisely under controlled laboratory conditions. These studies have fallen into three more or less distinct subdivisions, namely, studies of chemical changes, studies of bacterial changes, and studies of plankton in relation to chemical and bacterial purification.

Studies of chemical changes conducted by Associate Chemist E. J. Theriault during the past year have referred chiefly to the oxidation of organic matter in polluted waters, with a view to learning more of the laws which govern this reaction and thereby adding to the precision and significance of biochemical oxygen demand determinations as applied in studies of stream pollution and in the control of sewage treatment works. The results of these studies have been presented in part in a paper on "The Determination of Dissolved Oxygen by the Winkler Method"[22] and in a paper on "The Rate of Deoxygenation of Polluted Waters," in press, for the Transactions of the American Society of Civil Engineers. Two other papers, completed except for minor revisions, will be submitted for publication at an early date. The first of these is an extensive bibliographical review of the development, interpretation, and use of determinations of biochemical oxygen demand and associated tests for the oxidizability of sewage matters. The second paper on "The Rate of Deoxygenation of Polluted Waters" presents the results of an extensive series of experiments conducted at the Cincinnati laboratory, determining the rate of deoxygenation under various conditions more carefully and precisely than has been done heretofore. It is believed that both of these papers will contribute materially to the significance and utility of biochemical oxygen demand determinations in sanitary engineering practice.

Throughout the year the attempt to devise satisfactory methods for studying bacterial purification in polluted water under experimental conditions has been continued by Associate Bacteriologist C. T. Butterfield with diligence and ingenuity, but without much success, since it appears that in containers of workable size the death rates of sewage bacteria differ materially from the death rates observed in natural streams, a circumstance for which no satisfactory explanation has yet been found. It has, therefore, been decided, on the advice of the group of consultants, to construct on the laboratory grounds a miniature artificial stream in which natural conditions may be more closely approximated. Plans for this construction at small expense have been approved, and work upon it has been begun, to be completed within a few weeks.

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[22] Public Health Bulletin No. 151.

Special Expert (Biologist) W. C. Purdy has been engaged during the year in completing the examination and classification of plankton specimens collected from the Illinois River and in preparing a report upon the data collected, a work which is now nearing completion. At the same time, in collaboration with Mr. Theriault and Mr. Butterfield, he has been conducting experimental studies on the relation of certain plankton forms to bacterial and chemical changes in polluted waters. These joint studies, including observations on plankton and bacteria in relation to the rate of oxidation of organic matter in the water, although they have been in progress for only a few months, have already shown results which promise to throw considerable light upon the biology of natural purification; and it is proposed to continue them as one of the principal items of experimental investigation during the next year.

Studies of the efficiency of water purification.—Under the direction of Sanitary Engineer H. W. Streeter two separate, though intimately related, studies of the efficiency of artificial processes for the purification of water supplies are in progress, namely, a collective study of municipal plants and an experimental study, utilizing a small experimental filter plant constructed for the purpose on the grounds of the laboratory at Cincinnati. In both studies Mr. Joseph W. Ellms, of Cleveland, Ohio, one of the foremost authorities on water purification, has given valuable service in his capacity as special consultant.

For the collective study, begun during the previous year, 17 muncipal filtration plants located in the Central and Middle Atlantic States were selected. At each plant arrangements were made for furnishing during a full year a detailed record of operations and of the results of physical, chemical, and bacteriological examinations of raw and treated water made in accordance with carefully standardized methods. The full year's record for all these plants was completed in October, 1924, since which time Mr. Streeter has been occupied in the compilation and analysis of the extensive data collected. A preliminary report upon this study was presented in a paper read before the Ohio Conference of Water Purification in November, 1924, and subsequently published by the service.[23] It is expected that a full report upon the whole study will be ready for publication in the autumn of the ensuing year.

The experimental filter plant constructed during the preceding year was put into operation on August 1, 1924. After two months devoted to preliminary work and adjustments, operation upon a systematic schedule of experimental work was begun October 1, 1924, and has been continued since then without material interruption. The raw water for the plant is taken from the Ohio River near the laboratory, with connections to a trunk sewer and to a filtered water supply, so that the pollution of the raw water may be artificially controlled and varied at will over a very wide range. The plant is, moreover, so constructed that it may be operated as two separate units treating the same influent by different processes and is in other respects extremely flexible. These features, together with the full laboratory facilities available at the station, make the plant highly adaptable to the purpose for which it was designed.

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[23] Reprint No. 987, from Public Health Reports, Jan. 30, 1925.

The schedule of experiments being carried out is an extensive one, including observations upon the basic relations between bacterial content of raw water and that of the effluents from successive stages of treatment; the efficiency, practicability, and cost of suggested improvements in practice, such as the use of larger amounts of coagulants, double sedimentation, and the use of finer sand for the filters; the practical limits of chlorination, etc. In planning and conducting these experiments close touch has been maintained with operating engineers through a committee of the Conference of State Sanitary Engineers, which has taken a keen interest in the studies and has rendered material assistance in suggesting problems and methods. As observations on all these points in order to be significant must cover a wide range of seasonal and other conditions, it is proposed to continue the experimental study at least one more year.

While neither the collective nor the experimental studies of water purification has been completed as yet, certain definite conclusions are already indicated, of which the principal are—

(1) That with given processes of water purification, such as are now commonly applied, the relation between bacterial quality of the raw water and that of the effluent may be expressed in a formula which seems to be of fairly general application. This confirms the similar but less general conclusion previously derived from a study of the Cincinnati and Louisville filtration plants in 1916. It is of practical importance as furnishing a working rule by which to estimate the limits of pollution in a raw water which are consistent with maintenance of a specified standard of quality in the effluent.

(2) That the experimental plant established at Cincinnati gives results which closely parallel those observed in municipal plants of much larger scale under similar conditions of loading and operation. This justifies the inference that results obtained in the experimental plant, under conditions which have not yet been experienced in large municipal plants, are applicable to the latter, a consideration which greatly extends the usefulness of the experimental plant for testing the efficacy of new or modified processes.

Studies of the physical chemistry of coagulation in water purification.—Associate Chemist L. B. Miller has been continued in his assignment to the Hygienic Laboratory, where, under the direction of Prof. William Mansfield Clark, he has continued his studies of the fundamental physical chemistry of the coagulation resulting from the addition of alum and certain other coagulants to water as commonly practiced in water purification processes. The latest results of these studies are presented in two papers[24] prepared by Doctor Miller, namely: "A Study of the Effects of Anions upon the Properties of 'Alum Floc;'" "Some Properties of Iron Compounds and their Relation to Water Clarification."

Toward the end of the fiscal year, these studies, which had been pursued for three years with very gratifying results, were unfortunately halted by Doctor Miller's resignation.

Study of the pollution of Lake Michigan in the vicinity of the Indiana-Illinois State line.—Toward the close of the previous fiscal year requests were received from the State health authorities of Indiana and Illinois, the commissioner of health of the city of Chicago, and the trustees of the Sanitary District of Chicago for the cooperation of the service in a study of the sewage pollution of the waters of Lake Michigan in the vicinity of the Indiana-Illinois State line, an area from which water-supplies are taken by cities in both States. As it appeared from a preliminary survey and conferences with the authorities concerned that the conditions affecting the pollution in that area were highly complex and required a well-coordinated study in the two States, it was agreed that the service would take such part in the study as might be necessary to coordinate the work of the State and local authorities.

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[24] Reprint No. 992, Public Health Reports, Feb 20, 1925; Reprint 1023, Public Health Reports July 3, 1925.

In accordance with this plan, Sanitary Engineer H. R. Crohurst was detailed, in August, 1924, to Chicago, to collect from various sources the information already available concerning sources of domestic and industrial sewage pollution in that area, and to cooperate with the State and city authorities in making such additional surveys as might be required. At the same time, Associate Bacteriologist C. T. Butterfield was assigned to organize and take charge of a temporary laboratory established in Chicago for the examination of water samples from the lake and other sources, the laboratory with all necessary equipment, subordinate personnel and service for the collection of samples, being furnished by the State and city authorities, chiefly by the Sanitary District of Chicago. This laboratory was put into operation early in September, 1924, under the direction of Mr. Butterfield, who continued in charge until November, when he was relieved by Assistant Surgeon M. V. Veldee and returned to his station at Cincinnati. Since the establishment of the laboratory, except during severe winter weather, when navigation on Lake Michigan was closed, samples have been collected upon a regular schedule, from sampling points extending along the lake front from Sixty-eighth Street in Chicago to a point east of Gary, Ind., and offshore to a distance of 5 to 10 miles.

The purpose in view is to map out accurately the distribution of sewage pollution in this area of the lake, as indicated by bacterial examination; and as far as possible, to determine its relation to certain major sources of sewage discharge under varying seasonal conditions. At the same time studies are being made of the water supplies taken from the lake in this area, and an epidemiological study of typhoid fever in their distribution areas is being made by Doctor Veldee. Also, the whole study is coordinated with similar systematic studies of these water supplies and of other areas of the lake by the city health department and the Sanitary District of Chicago.

It is proposed, as was agreed when the work was undertaken, that the laboratory and field studies be continued until the late autumn of 1925, to give observations over a full seasonal cycle. The observations to date indicate that the distribution of pollution in this section of the lake is extremely variable, being influenced apparently by changing currents in the lake, which in turn, are influenced by the direction and velocity of wind and by variations in temperature and barometric pressure. It is doubtful whether the study will succeed in establishing a satisfactory analysis of all these factors in relation to variations in pollution; but it is assured that the observations made will delineate the ranges of pollution which may ordinarily be expected in different zones of the lake.

Miscellaneous activities.—In addition to the pursuance of investigations and the preparation of formal reports for the presentation of results, an important part of the work of the Cincinnati laboratory has been the furnishing of detailed data from the station records to official agencies for their use in investigations or in planning administrative measures for the control of stream pollution. During the past year original records, in more detail than is suitable for publication, have been made available to several of the district engineer-officers of the United States Army Engineer Corps, for their use in connection with a survey of the status of stream pollution in the country; to the Sanitary District of Chicago, for use of the Engineering Board of Review appointed to recommend plans of that district, and to the State Department of Health of Ohio, for use in a survey of stream pollution in that State. Also, at the request of the Pennsylvania State Water Board, the officer in charge of the Cincinnati laboratory has been in consultation with a committee of that board relative to methods for conducting studies of the disposal of tannery wastes, and the chemist employed by the board has spent some time at the Cincinnati laboratory familiarizing himself with the technique of laboratory determinations made there.

Through the formal reports issued, through special papers several of which have been abstracted in a number of technical journals, and through personal contact with other agencies interested in stream pollution, the results of studies by the service have obtained a wider currency and application during the past year than in any year heretofore.

Excreta Disposal

The studies on the underground extension of bacterial and uranin pollution in the ground water, referred to in former reports, have been continued in two types of soil, namely, sand and gravel.

Sand.—Experimental bacterial pollution was reported last year up to 190 feet, and uranin pollution up to 345 feet. During the present year the bacteria (*Bacillus coli*) have been recovered in wells up to 232 feet from the original point of pollution, and the uranin up to 450 feet. The bacterial pollution survived for two years and eight months. As the last survey of the experimental field was conducted during a low ground-water period, the bacteria had filtered out into the overlying capillary fringe and soil. The uranin has gradually decreased, either by fading or being lost in the soil, or by flowing on in very diluted condition, but in some places it is still visible to the naked eye after a period of three years and two months.

Gravel.—An attempt was made to confirm for gravel aquifers the points which have been established at Fort Caswell for sand aquifer. However, mechanical difficulties have been encountered, because of clay layers overlying the gravel, which render the experiments so expensive that work in gravel has been discontinued.

Housing

In October, 1924, studies on housing conditions were begun, Surg. N. Roberts having been detailed to work out a plan which may be recommended to improve public health through the development of a method of community housing designed to provide for the population in that respect, and to be in proper relation to other developments so far as they can be foreseen.

Hygienic Laboratory

Studies were continued at the Hygienic Laboratory under the direction of Surg. G. W. McCoy, director, and Surg. R. E. Dyer, assistant director.

A meeting of the advisory board was held on January 2, 1925, at which the work of the laboratory was reviewed and an opportunity presented to discuss some of the perplexing problems that were confronting the laboratory, especially problems in connection with the control of biologic products.

Five student officers were detailed to the laboratory for a period of five months for a course of instruction in accordance with a plan which has been followed for several years.

A large number of visitors from abroad have come to the laboratory and spent varying periods of time on investigations or, more frequently, observing methods. During the interchange visits of foreign health officials, demonstrations of laboratory work were made for their information, and lectures provided on current activities of the laboratory.

At the close of the fiscal year the library of the laboratory contained a total of 11,463 bound volumes, of which 583 had been acquired during the year. The pamphlet collection was increased by several hundred additions.

DIVISION OF PATHOLOGY AND BACTERIOLOGY

Surg. G. W. McCoy has been in immediate charge of the work of this division, which is divided, so far as the research features are concerned, into three sections: Nutritional diseases, under Surg. J. Goldberger; infectious diseases, under Surg. J. P. Leake; and pathology, under Surg. G. C. Lake.

STUDIES IN NUTRITION

This work was continued under the direction of Surg. Joseph Goldberger, who was assisted by Surg. G. A. Wheeler and Asst. Surg. L. M. Rogers.

The section on nutritional diseases has been occupied with the study of experimental black tongue of dogs with special reference to its relation to human pellagra. The therapeutic and preventive values of certain foods, notably butter and dried brewers' yeast (and the Osborne and Wakeman fraction from yeast) have been tested. The tests are still in progress at the close of the fiscal year, but are sufficiently advanced to permit the statement that butter has feeble, if any, black-tongue preventive power, and that dried brewers' yeast (including the Osborne-Wakeman fraction) is very efficient.

This experience in the canine disease closely parallels the experience with these foods in human pellagra.

STUDIES OF INFECTIOUS DISEASES

Tularaemia.—Researches under Surg. Edward Francis comprised: (1) A study of the geographic distribution of the disease in the United

States. It was found to have occurred in 16 States and in the District of Columbia, 6 States having been added to the list within the past year. (2) A study of the serological relations of *Bacterium tularense*, *Brucella melitensis* var. *abortus*, and *Brucella melitensis* var. *melitensis*. This relationship was found to be so close in certain instances as to require agglutinin absorption tests to determine which organism was causing the human or animal infection. (3) Studies of the effect of refrigeration on the viability of infection in animal tissues. At temperatures below freezing, the viability was lost after four weeks but not under three weeks.

Research on tularaemia conducted in the Rocky Mountain spotted fever laboratory at Hamilton, Mont., under Surg. R. R. Spencer and Special Expert R. R. Parker, developed the following very important facts: (1) Widespread natural tularaemia infection in wood ticks in Montana; (2) transmission of the disease to man in nature in several instances by tick bites; (3) transmission of the infection by the wood tick, *Dermacentor andersoni*, and by the rabbit tick, *Haemaphysalis leporis palustris*, through their eggs to the next generation of ticks, this being the first demonstration of hereditary transmission of a known bacterial infection among ticks; (4) ticks collected from sheep affected with tick paralysis and from a child affected with tick paralysis have all shown evidence of infection with *Bacterium tularense;* (5) the serious danger of infection to laboratory workers was again abundantly demonstrated. The total personnel of the laboratory connected with tularaemia investigations, six in number, contracted the disease.

Rocky Mountain spotted fever.—Work on Rocky Mountain spotted fever was continued at the Hygienic Laboratory and at Hamilton, Mont., by Surg. R. R. Spencer and Special Expert R. R. Parker along the following lines: (1) Studies on tick virus; (2) preparation of vaccine; and (3) studies relating to the natural maintenance of Rocky Mountain spotted-fever infection.

(1) Tick virus:[25] Studies on the nature and characteristics of tick virus of spotted fever as opposed to blood virus of infected animals were continued, and the following observations were made:

(*a*) Tick virus possesses markedly different characteristics from blood virus. The most notable differences are: (1) It contains far more Rickettsia; (2) it is intensely more infectious; (3) active tick virus, killed by phenol, immunizes laboratory animals, but similarly killed blood virus does not; (4) tick virus varies in infectiousness—time, temperature, and the ingestion of blood being important controlling factors, but infectiousness of blood virus remains reasonably constant.

(*b*) Virus ingested by larval and nymphal ticks increases its infectiousness in subsequent stages of the same generation.

(*c*) Tick virus as it occurs in emulsions of infected tick viscera will not pass Berkefeld "N" and "V" filters. This is apparently not due to a chemical affinity or an absorptive property of the material of which the filter candles are made.

(2) Preparation of vaccine: Since tick virus is the highest concentration of spotted-fever virus yet found, and since this virus, when phenolized, possesses marked immunizing properties, it has been

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[25] Reprint No. 976, from Public Health Reports, Nov. 28, 1924; Reprint No. 982, from Public Health Reports, Dec. 26, 1924.

used as a basis of an experimental vaccine. This vaccine was found to confer full protection on guinea pigs, rabbits, and monkeys against both blood virus and highly virulent tick virus.

(3) Studies relating to the maintenance of Rocky Mountain spotted fever in nature: The following laboratory and field investigations relating to the natural maintenance of this infection are being conducted: (*a*) To determine the importance of hereditary transmission of the virus by the tick as a factor in natural maintenance, and (*b*) studies of the cause of regional variations in virulence.

Vaccination sequelæ.—A study of the complications following vaccination against smallpox, with especial reference to tetanus, which appears to be more frequent in North America than elsewhere, was begun by the Hygienic Laboratory in September, 1924, and is being continued.

The plan of work, which is being carried out by Surg. Charles Armstrong, contemplates a study of vaccination methods in general, together with a detailed investigation of the circumstances surrounding each case of serious post-vaccination complication, especially tetanus, with the hope that a common factor or factors of etiological significance may be found and eliminated. The number of cases investigated to date is too small to justify any general conclusions; however, through these studies 11 cases of tetanus were found which followed the use of bunion pads as a vaccination dressing.

Tetanus spores were demonstrated in 25 per cent of over 200 such pads examined. Warning against the use of bunion pads and shields as a dressing for vaccination wounds has been issued by the bureau through the medical and lay press. The bunion pad, of course, does not account for all cases of post-vaccinal tetanus.

Laboratory studies dealing with the isolation of the tetanus organism and with other phases of the problem are under way.

Malta fever.—Work under this head has been carried on by Associate Bacteriologist Alice C. Evans.

A serological study was made of a considerable number of strains from human cases of Malta fever and from infected goats in Mediterranean countries. A similar study had previously been made of strains from human cases of Malta fever and from cases of contagious abortion in cattle and other animals in the United States and in northern and central Europe. The results showed that there is a definite geographical distribution of serological types of *Brucella melitensis*. The *abortus* variety, which predominates in the United States and in northern and central Europe, was not found among the strains from Mediterranean countries; and of the four serological types common in Mediterranean countries, only one was found in this country. The Mediterranean type appears to be responsible for the Malta fever which is contracted from goats in the Southwestern States. It also occurs sporadically in other parts of this country.

Serums and cultures were received from four cases of Malta fever in States where it had previously been unknown. Serological study showed that in three of these cases the infection was with the *abortus* variety of *Brucella melitensis*. One of these cases occurred in Connecticut, one in Maryland, and one in New York State. The fourth case was that of a butcher in North Carolina and was due to the true *melitensis* type of the organism, although the patient knew of no possibility of his having contracted the disease from goats.

Tuberculosis.—Investigations of tuberculosis were continued under the direction of Pathologist W. C. White.

The work was concerned largely with the study of the epithelioid cell, or monocyte, in which the tubercle bacillus lives in the animal body. Attempts have been made to modify the rôle which this cell plays in the infection by increasing or diminishing its numbers or by interfering with its normal processes of development. The subject of oxidation-reduction phenomena in the combination of monocyte and tubercle bacillus in tuberculous infection has also been the basis of experimental work. These are lines of investigation that will require long and painstaking study. They are, however, part of a correlated plan of national research in tuberculosis which is being carried on by the Public Health Service in cooperation with the National Tuberculosis Association and other interested bodies in an attempt to mobilize the research facilities of the United States in solving this problem. This plan seeks to avoid duplication of effort, provide for comparison of results, and open the way for secure advance in this field study.

Poliomyelitis.—Cultural studies of poliomyelitis by Associate Bacteriologist Evans have given most interesting results, the significance of which is not at present clear. Briefly, there has been obtained in primary cultures from central nerve tissue of animals dead after inoculation of poliomyelitis virus, and from other sources, an organism which appears to be an ordinary coccus which runs true in aerobic subcultures. This agrees in general with the pleomorphic coccus which was isolated by Rosenow and regarded by him as the cause of poliomyelitis. Incubation of apparently pure cultures of the coccus under certain anaerobic conditions leads to the development of diphtheroids. Diphtheroids under certain conditions of cultivation appear to resolve into minute bodies which agree morphologically with the description and illustrations of the "globoid" bodies which were isolated by Flexner and Noguchi, and Amoss from poliomyelitis tissue.

Pneumonia.—The investigations at Bellevue Hospital in New York were continued under the direction of Special Expert R. L. Cecil, and embraced clinical and animal experimental work. The former dealt with concentrated antipneumococcic serum used therapeutically. The results were suggestive of value if the treatment were given early, but further work will be required before the value of the material is determined. Experimental studies on animals dealt with active and passive immunity in monkeys. The results have no special clinical or public-health bearing at the present time.

Trachoma.—The studies on the etiology of trachoma which have been carried on by Associate Bacteriologist Ida A. Bengtson, in the branch laboratory at Rolla, Mo., in connection with the trachoma hospital maintained there by the Public Health Service, have included examination of smears from all patients on whom grattage operations have been performed, as well as cultural studies.

The number of cases studied since March 1, 1924, included 70 patients at the trachoma hospital. A number of cases were also studied at 10 trachoma clinics held in various parts of the State, but less fully than the cases at the hospital. The results of the observations do not warrant any statement at present.

DRUG ADDICTION

Surg. Lawrence Kolb and Pharmacologist A. G. Du Mez carried on clinical and social studies dealing with the etiology of addiction, the types and characteristics of addicts, the effects of narcotics upon addicts, and drug addiction in its relation to crime.

Studies previously started were continued during the year. The data collected bearing on the prevalence of addiction [26] while not so extensive as those upon which a report was based last year, indicated that addiction in the United States is still decreasing.

Eighty-six per cent of all cases examined had suffered with some form of nervous instability before they became addicts. The remainder were mostly addicts who had taken opiates for long periods to relieve the distress of physical diseases. Opium had one common effect upon all of them: It gave a sense of relief from the tensions, worries, pathological strivings, and feelings of inadequacy that underlay their nervous condition. Having discovered what pleasurable relief opiates were capable of giving them, the nervous cases continued to take the drugs until they became addicted.

From a study of the intelligence of 100 addicts, it was concluded that low native intelligence is not of itself a cause of drug addiction, but that defective intelligence bears the same relation to drug addiction that it does to functional nervous disorders.

The study of crime showed that all preparations of opium capable of producing addiction inhibit aggressive impulses and make psychopathic characters less likely to commit violent crimes.

CONTROL OF BIOLOGIC PRODUCTS

Two particularly important problems connected with this activity have been dealt with during the year: First, the test of a proposed treatment for tuberculosis and, second, the establishment of requirements for the preparations that are coming into use for the prevention and the treatment of scarlet fever. These subjects are dealt with under special headings below. The testing of biologic products during the year was carried on as follows:

Tests of biologic products

Product	Test for potency	Test for sterility
Diphtheria antitoxin	70	59
Scarlet fever streptococcus antitoxin	5	6
Scarlet fever streptococcus toxin for Dick test and immunization		11
Tetanus antitoxin	13	13
Botulinus antitoxin	6	
Rabies vaccine	12	30
Diphtheria toxin-antitoxin mixture	194	229
Diphtheria toxin for Schick test	102	8
Antipneumococcic serum	15	48
Antimeningococcic serum (agglutination)	77	62
Antidysenteric serum	10	12
Antityphoid vaccine	32	46
Vaccine virus	46	9
Miscellaneous serums	1	60
Miscellaneous vaccine		466
Tuberculin		50
Pollen extracts		149
Total	583	1,258

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[26] Reprint No. 956 from Public Health Reports, Sept. 12, 1924; Reprint No. 997 from Public Health Reports, Mar. 20, 1925.

Toxicity tests

Commercial samples of arsenicals	Total examined	Commercial samples of arsenicals	Total examined
Arsphenamine	98	Sulpharsphenamine	221
Neoarsphenamine	314		
Silver arsphenamine	2	Total	640
Sodium arsphenamine	5		

Scarlet fever biologic preparations.—The work on the standardization of the biologic products employed in connection with scarlet fever, which was done by Assistant Director R. E. Dyer, was made more than ordinarily difficult by reason of the fact that all tests were necessarily carried out on human beings, since animals are not adapted to use in this connection.[27] Only slightly less embarrassing than this was the fact that acute differences of opinion on important points developed very early among those engaged elsewhere in research on the problems. Since it was impracticable to determine within any reasonable time just which of several methods of production or which of different materials produced was best adapted to general use, it was decided to allow considerable latitude with respect to methods of preparation and preservation, but to require labels on the package to show as definitely as possible the nature of the contents. This policy will have the effect of permitting the physician to select and use the material of his choice, and thus lead to the determination of which preparation, if any, is superior to the others. Under the requirements adopted several manufacturing establishments have been licensed for the manufacture and sale of the Dick toxin for susceptibility test and immunization, and for the antitoxin for treatment of the disease. Further investigations are in progress for the improvement of the methods for testing the antitoxin and for the manufacture and testing of the toxin.

Tuberculosis remedies.—It has been necessary to investigate a number of applications for distribution of drugs claimed to cure tuberculosis. One of these, named "Sanocrysin," a gold-sulphur compound, proposed as a cure by a Danish scientist, Professor Møllgaard, of Copenhagen, and others, merited specially careful study because of the prominence of those who attested to its value. Since a serum was required to be used in conjunction with the chemical compound, the plan of treatment was regarded for experimental purposes as falling under the provisions of the law of July 1, 1902, governing biologic products. Inasmuch as the claims of the Danish investigators were based on the value of the chemical compound and the serum in calf experiments, the assistance of distinguished American scientists familiar with cattle tuberculosis was invited, to repeat, if possible, the basal experiments of the Danish laboratory before recommending that the drug be used in this country on cases of the disease in man. Those who generously assisted in this work, which was under the direct supervision of Pathologist W. C. White, were Dr. Theobald Smith, of the Rockefeller Institute Laboratory at Princeton, N. J.; Dr. William H. Park, of the New York City Research Laboratories; and Dr. E. C. Schroeder, director of the animal experiment station of the Bureau of Animal Industry near Washington. The results of these experiments were entirely negative so far as concerns any benefit from the treatment. These negative experimental results, together with the results of careful analyses by experts of the Public Health Service and by other experienced physicians and pathologists, of the clinical data on the use of the preparation, have led to the conclusion that the granting of a license for the importation of the preparation for clinical use is not justified at the present time.

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[27] Reprint No. 998, from Public Health Reports, Mar. 27, 1925; Reprint No. 1007, from Public Health Reports, May 1, 1925.

MISCELLANEOUS ACTIVITIES

In addition to these major lines of work, studies have been carried on in relation to the standardization of antianthrax and antidysentery serums, pollen extracts,[28] and smallpox vaccine. A study was made also of the viability of pathogenic organisms on dried tropical fruits, such as raisins and dates.

Routine clinical work, July 1, 1924, to July 1, 1925

Typhoid vaccine administered	52
Physical examinations	7
Smallpox vaccinations	214
Antirabic treatments	2
Dick tests	885
Schick tests	4
Diphtheria toxin-antitoxin administered	5
Personnel treatments	33
Hay-fever treatments	29
Total	1, 231

Specimens examined routinely

Heads for rabies	87
Sputum	10
Urine	55
Tissue	269
Water	38
Feces	7
Wassermanns	5, 326
Sera (tularaemia)	70
Blood counts	60
Cultures (identification)	93
Miscellaneous	104
Total	6, 119

DIVISION OF ZOOLOGY

The professor of zoology, C. W. Stiles, spent a considerable portion of his time as chairman of the board on excreta disposal, but he finished this detail on June 30, 1925, and will return to regular duty.

International commission on zoological nomenclature.—Cooperation with the International Commission on Zoological Nomenclature has continued in the same manner as in preceding years.

Index catalogue of medical and veterinary zoology.—The first number of the host catalogue appeared during the year under the title "Key-catalogue of the protozoa reported for man." The manuscript of the second number, entitled "Key-catalogue of the worms reported for man," was sent to press in May, 1925. The third number, "Key-catalogue of the arthropods reported for man," is now being prepared for publication.

Examination of intestinal parasites for diagnosis.—This part of the routine work of the division has been continued throughout the year. Specimens have been examined for the National Training School for Boys, for various Government hospitals, State boards of health, universities, and for practicing physicians.

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[28] Reprint No. 958, from Public Health Reports, Sept. 9, 1924.

Miscellaneous.—In addition to work on the index catalogue, several papers on parasites have been prepared by the division personnel.

DIVISION OF CHEMISTRY

The division of chemistry, under the direction of Prof. W. Mansfield Clark, conducted investigations in the following subjects:

Oxidation-reduction processes.—A certain type of chemical reaction known as oxidation-reduction can be described as the transfer of electrons from a reductant to an oxidant. At least this gives a conceptual basis for the formulation of the experimental fact that a given set of oxidant and reductant induces between their solution and an inert metal an electrical difference of potential. Such potential differences define, in exact quantitative values, the ability of one system to oxidize another. The division is systematically accumulating such experimental data and is demonstrating their applicability as the progressively enlarging body of data makes contact with a wide variety of biochemical problems.

Difficulties which have stood in the way of an adequate characterization of methylene blue, the most widely used indicator of reduction by the living cell, have been clarified and the quantitative data have been published in such a way as to show their value to the interpretation of the methylene-blue test of sewage, of the methylene-blue test of milk, of the conduct of methylene blue in cytological staining, and of a variety of other uses.

Further studies were made of reduction by living cells, and many of the phenomena hitherto studied with methylene blue as reagent were followed with greater precision and in greater detail by electrode potential measurements, thereby establishing a new and more powerful experimental method for the study of cellular processes.

As a step toward the completion of a series of reliable oxidation-reduction indicators, a series of dichloro indophenols was synthesized and the characteristic potentials measured.

Investigations are now being extended to benzidine and similar compounds hitherto used in the study of cell oxidation.

Preliminary studies were made of the use of potential measurements in following disinfection by iodine and chlorine. The absorption of these halogens by organic material is made evident by the electrode potential. Consequently electrode potentials can be made a measure of the rate or extent of detoxification by organic material. To demonstrate this in a striking way, an apparatus was devised for the automatic injection of iodine into a broth culture at such a rate that the potential of an electrode would never indicate the danger zone. In this manner exceedingly large quantities of iodine were introduced without stopping growth, metabolism, or motility of the bacteria. The application of these and other principles involved will be applied to the chlorination of water supplies when the theoretical bases are more thoroughly developed.

The studies on oxidation-reduction have required the preparation and purification of organic compounds, several of which are new. Some new hydrazines, originally designed for oxidation-reduction measurements, are receiving further study as organic chemicals because of their interest to the students of sugar metabolism.

A specific test for cysteine.—Perfection of the test described last year continued and use of it was made in demonstrating the presence of cysteine in *Mycobacterium tuberculosis* (tubercle bacillus.)

Isolation of crystalline material having antineuritic properties.—From a crystalline picrate previously isolated from yeast there has been obtained basic material possessing antineuritic properties. The identification or further purification of this material is being attempted.

New acid-base indicators.—More detailed characterizations of new indicators were made. A compilation of all reliable data on indicators was made for International Critical Tables.

Analysis of arsenicals.—The division of chemistry has charge of the chemical analysis of arsenicals the manufacture of which is licensed by the department. The maintenance of a high standard among manufacturers has permitted a very considerable reduction in the number of routine chemical analyses required and has permitted a more detailed examination of commercial products. The division has devised a method for determining the distribution of sulphur in the sulphur-arsenicals and by its application has brought to light a certain degree of variation in preparations of neoarsphenamine and sulpharsphenamine.[29]

Proteolytic enzymes of bacteria.—By applying the method previously devised for the assay of gelatinase, the influence of hydrion concentration and of surface exposure upon the production of gelatinase by *Proteus vulgaris* (*Bacillus proteus vulgaris*) has been studied. A still large variability in yield led to the use of synthetic culture media in which there has now been obtained not only growth but appreciable enzymic activity.

Alum process for the clarification of water.—In association with the office of stream pollution investigations, the division continued its investigations of the chemical principles underlying the alum process.[30] A study was made of the effects of anions, and it developed that the sulphate of "filter-alum" produces unique properties in the floc, without which present operations would be impracticable. This, in conjunction with former work, has established a scientific basis for the purchase and use of three "values" in filter alum, namely, the aluminium content, the source of "floc;" the sulphate, a conditioner of the floc; and the acidity, a constituent of the final equilibria the control of which is necessary to efficiency.

The chemical principles of the alum process have been extended to the iron process.

A preliminary examination of principles of color removal has shown that coloring materials of a certain type form a floc with aluminium ion and that therefore the removal of aluminium by the formation of ordinary "alum floc" is to be avoided. In cases where this principle will apply, a modification of current ideas and of current practices will lead to greater efficiency.

Miscellaneous.—Assistance was given to the pellagra studies by analysis of feeding material and preparation of vitamin concentrates. Some 440 miscellaneous analyses were made. Standard solutions were prepared for other divisions of the Hygienic Laboratory or for other offices of the service.

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[29] Reprint No. 1018, from Public Health Reports, May 12, 1925.

[30] Reprint No. 992, from Public Health Reports, Feb. 20, 1925.

DIVISION OF PHARMACOLOGY

Under the direction of Prof. Carl Voegtlin the following activities have been undertaken by the division of pharmacology:

Study of drugs for the treatment of syphilis.—The work dealing with the comparative efficiency of arsphenamine, neoarsphenamine, and sulpharsphenamine in experimental syphilis was continued and when completed will yield data of practical interest. In this work the Wassermann and Sigma tests are being used. Observations were made indicating that in the later stages of rabbit syphilis the animal develops a resistance to reïnoculation.

Preliminary experiments have shown that certain gold compounds possess a favorable therapeutic action, and for this reason chemical studies on the synthesis of organic gold compounds have been initiated in collaboration with the chemical department of the University of Maryland.

As an incidental study of great theoretical interest, work was continued on the mechanism of the toxic action of metal compounds on various forms of living cells. This work has shown that arsenic, copper, and gold compounds undergo a chemical reaction with the glutathione of protoplasm. These data represent the first experimental evidence which supports the chemoceptor theory of Ehrlich.

Tuberculosis.—Some interesting observations were made on the pathology of tuberculous infection in white rats and the relation between diet and this disease was also studied in this species of animals. It was found that tuberculous tissues yield a very weak test for glutathione, and the cause of this change is now under investigation.

Cancer.—It is believed that this problem is best approached by a thorough study of the laws of tissue growth and the comparison of the biochemistry of normal and malignant tissues. For this reason work was begun on tissue cultures outside of the body. Another phase of the work dealt with the reducing power of malignant as compared with normal tissues. It was found that carcinoma has a considerably smaller reducing power over a wide range of pH than liver tissue, a structure of similar embryonic origin. It was also discovered that sarcoma contains considerable glutathione in contradistinction to a very low glutathione content of normal connective tissue, a tissue from which sarcoma is supposed to be derived.

Biological standardization of drugs.—The chief of the division continued cooperation in an advisory capacity with a subcommittee on biological standardization of the health committee of the League of Nations. Through this cooperative work, good progress has been made in the biological standardization of pituitary extract, insulin,[31] and digitalis. The work on pituitary assay is now in a very satisfactory state, and, due largely to the work carried out by the division, should insure the control of this drug in such manner as to make its clinical use safe.

In connection with these studies, several theoretical problems of metabolism were given some consideration. It was discovered that glycerin increases the blood sugar and antagonizes the symptoms appearing after an excessive dose of insulin. It was also found that pituitary extract affects, in some unknown way, sugar metabolism, as indicated by the production of a high blood sugar value.

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[31] Reprint No. 943, from Public Health Reports, Aug. 8, 1924.

Permeability and conductivity of cells.—Some interesting observations were made on the penetration of arsenicals and oxidation-reduction indicators into single cell organisms.[32] Other work dealt with the electrical conductivity of pure protoplasm and the laking of red blood cells.

Cooperation with Revision Committee of the United States Pharmacopœia.—The last Digest of Comments on the United States Pharmacopœia and the National Formulary has been completed and the compilation of these digests has been taken over by the revision committee. A member of the division has continued active cooperation with this committee.

Viruses, Serums, Toxins, and Analogous Products

Under the law of July 1, 1902, which provides for the manufacture, importation and sale of viruses, serums, toxins, and analogous products under certain conditions intended to protect the purchasing public from impure or ineffective preparations, establishments have been inspected and products tested as in previous years. This work has been done under the immediate supervision of Surg. W. T. Harrison. At the close of the fiscal year, 36 domestic and 11 foreign establishments held licenses under this law. The products licensed for interstate traffic now number 96, an increase of 5 during the year.[33]

The laboratory investigations relating to viruses, serums, toxins and analogous products are reviewed on pages 54 to 56.

Miscellaneous

Information regarding the results of studies and investigations of the division has been made available to the public through the publications of the service, by means of interviews and conferences with health authorities, and by reports, lectures, and correspondence. During the past fiscal year 4 Hygienic Laboratory bulletins and 12 Public Health bulletins were published, and 118 articles by personnel of the division were published in the Public Health Reports and in outside journals. Forty articles prepared outside of the division were recommended for publication in the Public Health Reports and in outside publications. Altogether approximately 190 manuscripts were reviewed.

Representation of the service by attendance of its officers at meetings of public health and scientific associations is arranged under this division. Valuable interchange of ideas on subjects relating to the public health is secured at these meetings.

In the spring of 1925, a program including demonstrations of public-health activities in six States and the District of Columbia was arranged by the service through this division, for the instruction in the United States of delegates from the health departments of nine Latin-American countries which participated in an interchange of public health officials under the auspices of the health section of the League of Nations.

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[32] Reprint No. 986, from Public Health Reports, Jan. 23, 1925.

[33] Reprint No. 1016, from Public Health Reports, May 29, 1925.

COOPERATION WITH STATE BOARDS OF HEALTH

In addition to the foregoing, in which reference is made to the work of the division along various lines, at the request of and in cooperation with the health organizations of a number of States several other investigations and surveys were made, including the following:

An investigation by Surg. T. B. H. Anderson, in New Mexico, of a disease which was found to be tularaemia, caused by infected rabbits; studies of poliomyelitis in Montana by Surg. J. P. Leake; a survey by Surg. Carroll Fox of the State health organization in Colorado, and recommendations for its reorganization; studies of a typhuslike disease prevalent in the lower Rio Grande Valley, by Surg. K. F. Maxcy, in association with officers of the United States Army, published in Public Health Reports, February 6, 1925; an investigation by Surgs. C. Armstrong and Carroll Fox, of an outbreak of a disease in the vicinity of Chester, Pa., resembling dengue, which proved to be milk-borne; and a narcotic survey in Shreveport, La., and vicinity, by Surg. K. E. Miller.

ACKNOWLEDGMENTS

In addition to the cooperation from organizations previously referred to, laboratory facilities and other valuable assistance have been furnished in connection with service investigations of cancer, pneumonia, leprosy, mental health, public-health administration, remedies for syphilis, and industrial hygiene by the following universities: Harvard, Cornell, Hawaii, Johns Hopkins, Columbia, Yale, and the University of Maryland. The Board of Commissioners of Leflore County, Miss., and the city of Greenwood, in that county, gave laboratory space and equipment for use in the malaria investigations of the service. These services have constituted an important part in the research work, and the assistance of the cooperating personnel is much appreciated.

DIVISION OF DOMESTIC (INTERSTATE) QUARANTINE

In charge of Asst. Surg. Gen. W. F. Draper

The activities of this division during the past fiscal year to suppress epidemics and to prevent the interstate spread of disease have included: (1) Plague-suppressive measures; (2) activities for the eradication of trachoma; (3) the conduct of studies and demonstrations in rural sanitation; (4) the investigation of sanitary conditions of areas used for growing shellfish for shipment in interstate traffic; (5) the carrying out of service policies for the prevention of epidemics by assisting State health departments in establishing and improving local health service; (6) the improvement of sanitary conditions in the national parks; (7) the control of water supplies used for drinking and culinary purposes by interstate carriers; (8) supervision over sanitary and health conditions on interstate carriers; (9) mosquito-control measures along the Texas-Mexican border to prevent the spread of yellow fever should it be introduced; and (10) sanitary inspections of Government buildings.

Plague Suppressive Measures

GENERAL

On June 30, 1924, plague infection was absent from the United States as far as is known, with the exception of that existing in the ground squirrels of California. The last previous plague campaign outside of California terminated June 30, 1923, at New Orleans, La.

On November 1, 1924, an outbreak of pneumonic plague was reported from Los Angeles, Calif., and the presence of rodent plague infection in New Orleans was demonstrated on December 2, 1924, from a combination inoculation of five rats and three mice captured under the wharves from Lafayette Avenue to Piety Street on November 22, 1924. Also, during the latter part of December, 1924, plague infection was discovered in the rodent population of Oakland, Calif.

The details of the plague-eradicative work carried on by the Public Health Service in these places are set forth in the following sections:

Plague Suppressive Measures in California

Plague suppressive measures in California may be considered under the following divisions:

(*a*) Plague in Los Angeles.

(*b*) Plague in Oakland.

(*c*) Ground-squirrel control in the field.

(*d*) Rodent survey and sanitary inspections in San Francisco.

(*e*) Pathological and bacteriological examinations in the Public Health Service laboratory.

PLAGUE IN LOS ANGELES

General.—On November 1 the bureau was advised both by the medical officer in charge at Los Angeles and the director of the district that an outbreak of pneumonic plague had occurred in Los Angeles. Both the medical officers on duty in San Francisco in connection with plague-suppressive measures proceeded to Los Angeles with the secretary of the California State Board of Health, and cooperated in a survey of conditions and the inauguration of a control and eradicative campaign. The State authorities took charge of the work, but welcomed the assistance of service officers in an advisory capacity.

The service representatives cooperated to the fullest extent, (*a*) by confirming the disease as plague, (*b*) in the organization of the laboratory, and (*c*) by outlining the measures for the control of the epidemic and the eradication of the disease.

Human cases.—On November 3, 27 cases of plague of the pneumonic type had been recorded. These had occurred in rapid succession since exposure to a sick person diagnosed as suffering from fulminating pneumonic plague, who was ill on October 22 and died four days later, and from contact with secondary cases.

An epidemiological study showed that an individual had been taken ill on October 1 with a disease that conformed in type to bubonic plague, and that the daughter of this person was taken ill about the same time with a sore throat, cervical adenitis, and double pneumonia. The first is believed to have been the original case (bubonic plague) and the second in all probability was the primary pneumonic case of plague.

There existed an interval between October 4 and October 14 where epidemiological studies failed to disclose any illness or incidents suspicious of the presence of plague, but in all probability there occurred some unrecognized cases of the disease during this interval to perpetuate the infection by contact until the occurrence of the unrecognized case of pneumonic plague on October 14, with the subsequent explosive outbreak.

From November 3 to November 11 five additional cases of pneumonic plague occurred. Subsequent to the latter date the pneumonic cases rapidly diminished, as prompt hospitalization had reduced the number of contacts and all the sick with the pneumonic type had died except two. One other case in December began as bubonic and developed into pneumonic, making a total of 33 cases of pneumonic plague with 31 deaths. There have been 8 cases of bubonic plague with 3 deaths, making a total of 41 cases of human plague with 34 deaths to January 5, 1925, the date of last occurrence of human cases during the fiscal year.

Rodent plague.—Plague in rats was proved by prescribed laboratory methods soon after the trapping of these rodents was commenced. The first infected rat was confirmed on November 15, 1924. During that month 12 plague-infected rats were found in 3,216 rats caught in Los Angeles.

From November 6, 1924, when the trapping of rats was commenced, to May 13, 1925, 106,951 rats were examined and 187 proved positive for plague.

The infected rats were distributed as follows: Los Angeles City, 111; San Pedro (hog ranch), 6; Los Angeles County (all around various hog ranches), 43; Vernon City (a packing-house center adjoining Los Angeles), 27.

During the same period 16,094 ground squirrels were examined and 9 proved positive for plague. Of this number 7 were from rural sections within the corporate limits of the city of Los Angeles and 2 were in Los Angeles County.

Source of infection.—In considering the source of infection, two main facts were worthy of study: (*a*) The introduction of the infection from foreign ports through San Pedro—the port of Los Angeles—and (*b*) the transmission of plague from infected ground squirrels to rats.

The possibility of introduction through the port was given weight by the outbreak of human cases occurring in an area adjacent to the freight yards and unloading stations, where articles imported from foreign ports were handled. However, intensive trapping in San Pedro, especially the wharves and adjacent areas, over a period of six months, has disclosed no plague-infected rats except at a hog ranch where there was intimate contact between the rats and ground squirrels.

Early consideration was given to the possibility of the transmission of the infection to rats from ground squirrels, as the latter rodents were numerous and contact between these two species existed in many sections of the city. Furthermore, the virulent outbreak of plague in squirrels in San Luis Obispo County during the year showed that plague had extended farther south and infection in the squirrels in Los Angeles was a possibility. Weight was given to this source by the type of the disease in man. The "marmot type" was suggested by the preponderance of lung involvement in human cases. The guinea pigs inoculated for confirmation also showed a prominence of lung lesions. Infected squirrels have been found in the city, and it is believed the infection was a spread of plague from the endemic center in ground squirrels.

PLAGUE IN OAKLAND

When the outbreak of plague in Los Angeles occurred, rat surveys were urged in other cities. The health officer of Oakland started limited trappings for specimens and commenced his operations on the main garbage dump, where rat infection was heavy. The service extended aid by examining in the laboratory all rats forwarded. The presence of plague in rats was confirmed and reported on December 15.

Immediately following there were conferences with the supervisors of Alameda County, the health officers of East Bay cities, and the commissioner of public health and safety of Oakland.

The Public Health Service was asked on December 22 to take charge of all measures for the eradication of the disease, and responded by the detail on December 23 of a trained officer for this purpose. The detailed work in connection with the antiplague activities in Oakland will be set forth in proper section of this report.

PLAGUE IN GROUND SQUIRRELS

Plague in ground squirrels continues as endemic foci over a large area. These foci exist in the central and coast counties of the State, extending from Carquinez Straits on the north to Los Angeles County on the south.

In 1920, when it was possible to carry out general shooting operations, plague was proved still to exist in the 10 counties in which the disease had previously been found. Since that date plague has been found in squirrels in the following counties: Contra Costa, Alameda, San Benito, Santa Cruz, Monterey, San Luis Obispo, and Los Angeles, and shooting operations would no doubt have demonstrated the presence of the disease in the other counties covered in 1920.

The presence of the plague in San Luis Obispo and Los Angeles Counties shows the further extension of this disease in ground squirrels. Although infected rodents have not been reported from the intervening counties of Santa Barbara and Ventura, it is believed safe to assume the disease is present, as no examination of squirrels has been made to determine its absence.

A virulent epidemic in squirrels has occurred during the year in San Luis Obispo, San Benito, and Monterey Counties, and reports have also been received that excessive mortality has occurred in squirrels in sections of Contra Costa and Santa Clara Counties.

During the period covered by this report infected squirrels have been proved in San Benito, San Luis Obispo, and Los Angeles Counties.

FIELD OPERATIONS FOR CONTROL OF GROUND SQUIRRELS

It has been possible to carry out the plague-eradicative work in only four counties on account of the limited funds available for this activity. A long dry season created favorable conditions for poison-grain operations and very satisfactory results were accomplished. The same plan has been followed as in the three preceding years and particular effort has been made to create squirrel-free zones around centers of population.

The following statements set forth the field operations:

Number of inspections	425
Number of reinspections	5, 109
Number of acres inspected	367, 571
Number of acres reinspected	1, 589, 030
Number of acres treated with waste balls	88, 487
Number of acres treated with destructors	185
Number of acres treated with grain	414, 205
Number of holes treated with carbon bisulphide	625, 768

Material used

Number of pounds poisoned grain	186, 784
Number of gallons carbon bisulphide	10, 096¾
Number of waste balls used	624, 848

Poisoned barley mixed for private landowners under supervision of employees of service

Number of pounds	91, 852

Experimental work with calcium cyanide

Acres of land treated	670
Number of burrows treated	2, 660
Pounds of calcium cyanide used	407

MEASURES TAKEN AGAINST RATS

A rodent survey by trapping and examining rats in San Francisco has been continued during the year. This has been carried out jointly by the Public Health Service and the city department of health. Two Federal and five city employees have been employed in this work. The survey has been under the supervision of the service, as the health officer requested that the Public Health Service assume complete jurisdiction. The city utilized an appropriation of $7,000 for this purpose.

During the year 1,800 traps were in daily use, and the number of rats caught was 34,053.

Practically all of these rats were examined in the Public Health Service laboratory operated in San Francisco, and none were found infected. In addition to trapping measures, 374,800 pieces of poison were placed in vacant lots, lumber piles, etc.

Classification of rats.—The following data will be interesting in showing the species of rats trapped in two separate but adjacent communities. This is rendered possible on account of the rats caught in Oakland and other East Bay cities having been examined in the laboratory here.

Rats from San Francisco:		Rats from East Bay cities:	
Mus norvegicus	24, 735	Mus norvegicus	55, 305
Mus rattus	4, 119	Mus rattus	820
Mus alexandrinus	5, 169	Mus alexandrinus	527
Total	34, 053	Total	56, 652

It will be noted that a much larger percentage of rats other than mus norvegicus are caught in San Francisco. This is due to the extensive rat-proofing work that has been carried out. In Oakland the rat-proofing of buildings has been limited, and consequently the ground rat has not been killed out to any appreciable extent.

Rats from ships.—A classification of 2,767 rats from ships gives the following: *Mus norvegicus*, 27; *Mus rattus*, 1,419; *Mus alexandrinus*, 1,321. The number of Norways is unusual and they were secured from a whaler.

Other measures taken against rats

Number of premises inspected	17, 438
Number of nuisances abated	3, 216
Number of complaints investigated	1, 756
Number of garbage cans installed	1, 659
Number of chicken yards abandoned	53
Number of premises cleaned of rubbish	408
Number of floors torn up	362
Number of basements torn up	16
Number of yards torn up	8
Number of buildings destroyed	285
Number of stables destroyed	16

Measures taken for the permanent rat-proofing of old buildings including food places

Number of buildings rat-proofed by concreting	450
Basements concreted (square feet, 80,855)	54
Floors concreted (square feet, 731,290)	426
Yards, passageways, sidewalks, etc., concreted (square feet, 7,359)	18
Total area concrete laid square feet	819,504
Total area walls installed (cubic feet, 49,945)	144
Number floors rat-proofed with double floors and wire cloth between (square feet, 51,450)	32
Openings in walls, ceilings, and floors and around pipes closed by wire cloth and cement	7, 310

SANITARY INSPECTIONS IN SAN FRANCISCO

The sanitary inspections performed in the city of San Francisco are on complaints referred from the city health department and from other sources.

The work accomplished is as follows:

Rat complaints	743
Manure and stable complaints	24
Chicken, rabbit, pigeon, etc., complaints	225
Garbage and defective garbage cans	137
Rubbish complaints	20
Plumbing complaints	5
Insanitary premises, including shacks	240
Stench complaints	17
Goat, dog, and cat complaints	12
Mosquito, fly, and flea complaints	2
Swine complaints	2
Plumbing complaints referred to board of health	4
Miscellaneous	325
Total	1, 756

NOTE.—All the above complaints were investigated by the inspectors, the necessary notices prepared and sent out, and reinspections made to determine whether the existing nuisances were abated.

Condemnation proceedings

Number of buildings submitted to board of health for condemnation	193
Number of buildings acted on by board of health and condemned	107
Number of buildings acted on by board of health and not condemned	[1] 85
Number of buildings abated following condemnation proceedings; by repair, 7; by demolition, 140	147
Number of buildings condemned and remaining unabated	136

OPERATIONS OF PUBLIC HEALTH SERVICE LABORATORY

The epidemic work of the laboratory has been increased during the year by acute outbreaks of plague in Los Angeles and in Oakland. The cooperative activities, both within the service and with other governmental agencies have continued as heretofore.

Upon the development of plague in Los Angeles, laboratory aid was immediately rendered to the State Board of Health of California. Investigations and tests were made to confirm the presence of the disease both in man and rodents. Both the pneumonic and bubonic forms were determined. Practical demonstrations of the manner of examining rodents and of the methods of detecting the presence of plague in them were made through a period of three weeks, to technicians under the State board of health in Los Angeles, and assistance was rendered in the organization of its field laboratory.

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[1] These include some buildings condemned during previous years; hence totals will not balance.

Plague infection in rodents in Oakland was determined in the United States Public Health Service laboratory, in which were made all subsequent examinations of the rodents collected and forwarded from Richmond, Berkeley, Oakland, and Alameda.

Twenty-one rats from Oakland were proved infected. These were all *Mus norvegicus*.

During these investigations, amongst rats frequenting garbage dumps and establishments handling meat products, a disease was found, the gross pathology of which in the rat resembles that of acute plague. The disease is found to be an infection with a small bacterium which is a member of the hemorrhagic septicemia group of bacteria, and which causes acute deaths in guinea pigs when inoculated in small doses. The presence of the disease causes difficulties in the diagnosis of plague, both because of the similarity of the lesions of the rat, and because of the acute deaths in the test animals before the typical pathology of plague may have had time to develop. Complete differentiation of the two infections can, however, be made by cultural methods.

Four squirrels from San Benito County were also proved to be infected with plague.

Assistance has been rendered the hospital and relief stations of the service at San Francisco, San Pedro, and San Diego, and to the United States Veterans' Bureau, and to the Department of the Interior, Indian Medical Service, by clinical-microscopical, serological, and bacteriological examinations. Examinations of the water supply of the United States veterans' hospital at Livermore were also made.

The personnel of the laboratory has delivered lectures to students of both the University of California and the Leland Stanford University on subjects connected with the epidemic work of the service.

Experimental work has been conducted in the investigations of clonorchiasis and in those of plague.

Summary of laboratory operations

Examinations of rodents for plague:	
Rats from San Francisco	33, 264
Rats from Oakland, Alameda and Berkeley	55, 965
Rats from other localities	81
Rats from fumigated ships	2, 684
Mice from Oakland, Alameda, and Berkeley	434
Ground squirrels and other field rodents	4, 759
Total number rodents examined	97, 187
Serological examinations:	
Wassermann reactions	3, 201
Widal tests	13
Total	3, 214

Bacteriological examinations (cultures and microscopic):	
Blood	13
Feces	6
Urine	6
Throat cultures	1
Other body fluids	5
Catgut	40
Water examinations	51
Animal tissues for rabies	1
Total	123
Bacteriological examinations with animal inoculations:	
Tuberculosis	18
Rodent plague	224
Total	242
Squirrels (positive plague)	4
Rats (positive plague)	21
Total	25
Parasitological examinations:	
Rodents for clonorchiasis	500
Urine	1
Total	501
Histological examinations	79
Vaccines	3
Miscellaneous—Experimental tests on ratine and Danysz virus	2

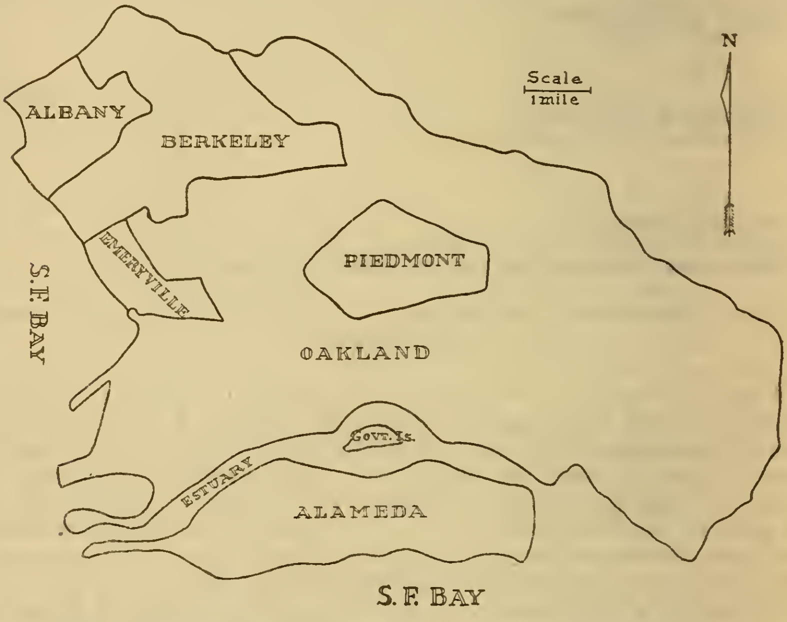
Plague-Suppressive Measures in Oakland, Calif. (East Bay Community)

Plague infection in the rodent population of Oakland was discovered in the latter part of December, 1924. For several years past the municipality had maintained a garbage dump on the western part of the city near the bay shore. This method of garbage disposal not only provided a comparatively cheap means of getting rid of garbage and other refuse, but also effected the reclamation of very valuable tidewater land, owned by the municipality. Unfortunately the dump was operated in a negligent manner, and as a result there was created a very unsanitary condition. Flies swarmed about the place and rats flourished. In December the rat population had grown to large proportions and constituted a serious menace from a plague standpoint because of the proximity of the dump to the water front.

Upon the appearance of plague in Los Angeles, Dr. H. E. Foster, health officer for the city of Oakland, having in mind these potentialities, decided upon a limited rat survey. Beginning in early December, the city trapping force captured on an average 15 rats per day, almost all from the dump, and these rodents were sent to the Public Health Service laboratory in San Francisco for examination. On December 16 Surg. N. E. Wayson reported as plague infected a Norway rat captured December 11 on the West Oakland garbage dump. Between this date and January 1, 11 infected rats were detected from those sent from Oakland.

UNITED STATES PUBLIC HEALTH SERVICE TAKES CHARGE OF CAMPAIGN

As soon as this condition became known, Mr. Frank Colbourn, commissioner of public health and safety, very promptly called a meeting of the city officials of Oakland, Alameda, Berkeley, Emeryville, and Piedmont, various city governments that enter into the East Bay community. Although divided into several different political bodies, the East Bay community is simply one large city (with an estimated population of 453,000) and the infection in Oakland naturally concerned Berkeley, Alameda, and the other East Bay city governments. This meeting was also attended by representatives of Alameda County, of the California State Board of Health, and the United States Public Health Service. It was decided that antiplague measures to be instituted should be unified and carried out under one head rather than to attempt several organizations, each operating under the respective city governments. At the request of the officials of the cities concerned and the State board of health, the United States Public Health Service took charge of plague-control measures. On December 24 the Surgeon General directed Surg. R. H. Creel to assume charge of the eradicative campaign.



ORGANIZATION

A centrally located office was obtained and the organization of a force immediately started. Surgeon Townsend and Pharmacist Hayes were ordered to Oakland to assist in the organization and administration of the campaign. Through the aid of Senior Surgeon Perry, two experienced trappers, old employees of the service, were obtained for purpose of training trappers. Later on six experienced trappers of the Public Health Service were ordered to Oakland from

New Orleans, and thereafter the work of obtaining a full force of trappers in the field went forward more rapidly.

When completed, the trapping force consisted of 1 chief inspector, 1 assistant to the chief inspector, 17 foremen trappers, and 90 trappers. Sixty trappers were assigned to Oakland and Emeryville, 16 to Berkeley, and 8 to Alameda. The trapping force in Oakland is still being maintained at a maximum, but in Berkeley and Alameda the survey work was curtailed in March and April and entirely discontinued in Alameda May 9, and in Berkeley June 1. Of the 4,170 rats captured and examined from Alameda and 5,373 from Berkeley, none was found to be infected.

In the beginning of the campaign tentative provision was made for the initiation of rat proofing in event developments should make this advisable. However, rat-proofing procedure was held in abeyance pending the ascertainment of the extent and nature of the epizootic. As time progressed and the delineation of the infection indicated that it was circumscribed and that its spread was being prevented, the officer in charge decided that the epizootic could be eradicated by trapping alone without resort to any extensive rat proofing, and the results have confirmed the wisdom of such policy. There was thus saved a very substantial amount of Government funds and a burdensome expense to property owners. The only rat-proofing legislation requested was that prohibiting junk yards from storing (except in rat-proof receptacles or storerooms) fresh bones or other material affording food for rodents. The legislation was promptly enacted by the Oakland council.

Had the infection been widespread, or had there been numerous rat centers, or had the type of construction in the East Bay cities been unduly favorable to rat harborage, rat-proofing might well have been a prerequisite to the control of the epizootic, but none of these factors prevailed.

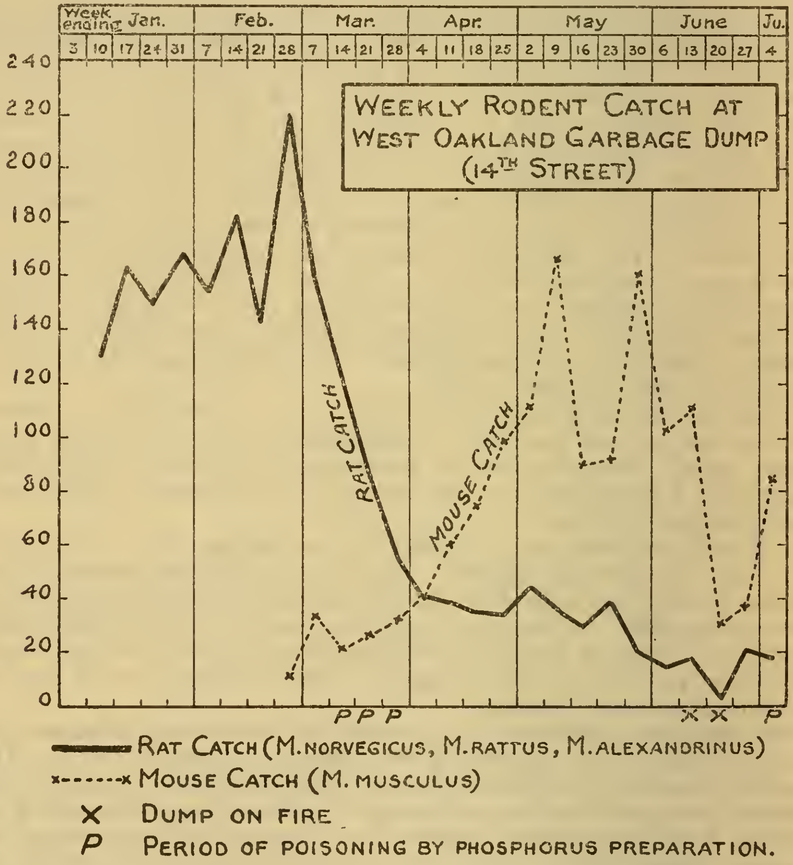
All field activities were directed from a central office, from which also were distributed supplies. Foremen maintained district offices where the trappers assembled for roll call, to turn in rat catch, and to procure supplies. A truck operated from headquarters, making daily rounds of trapping districts, furnishing bait and other supplies and collecting rat catch, which later the truck delivered to the service laboratory at San Francisco.

Record was maintained as to supplies issued and foremen and trappers were held responsible for property issued to them. The foremen each day forwarded through the driver of the truck, requisitions for traps and other equipment as needed and at the same time turned into headquarters defective equipment for replacement or repairs. Bait (chiefly bacon) was cut up at headquarters and issued ready for use when delivered to trappers. Likewise all defective traps were repaired at headquarters, and these two centralized activities made for a very considerable saving of time to the trappers.

TRAPPING

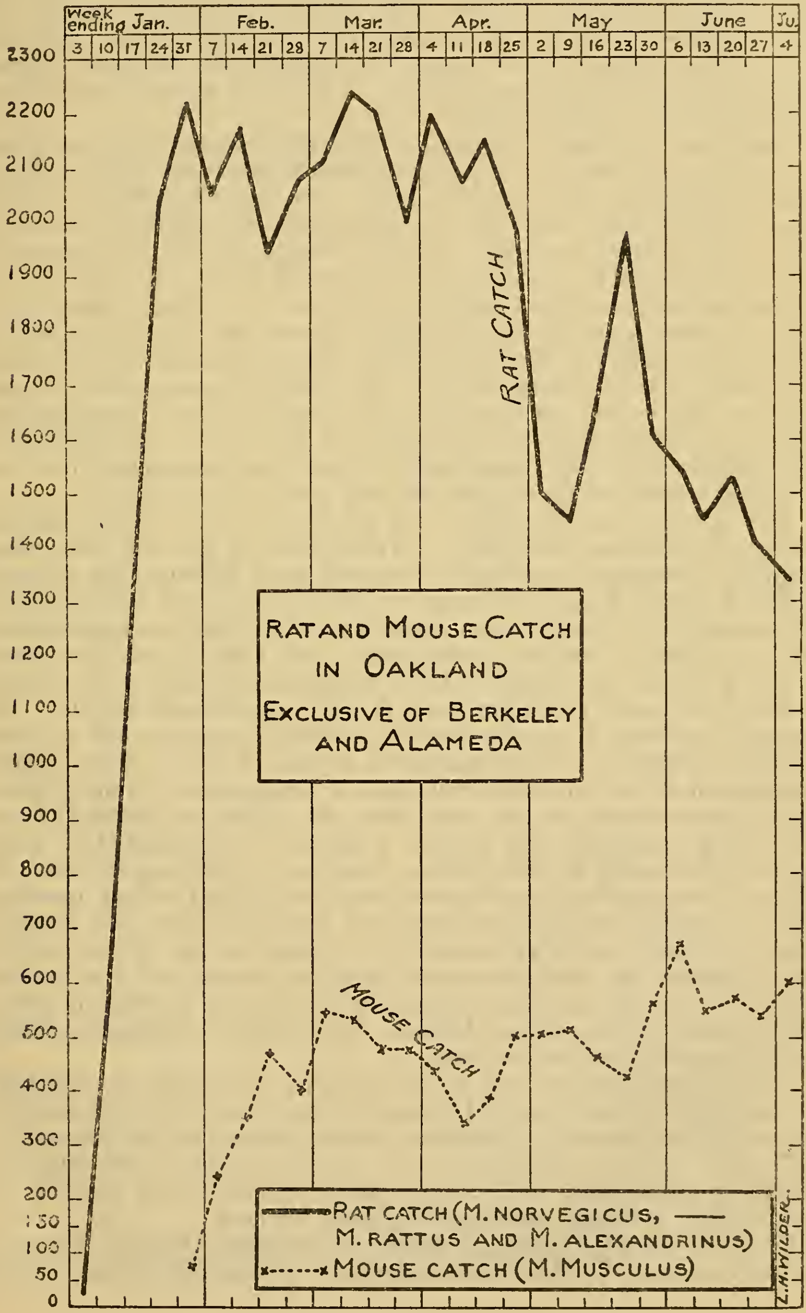
Widespread operations throughout the city were decided upon rather than any attempt toward sectional eradication. While the latter procedure has been advocated, it remains nothing less than a theory, and, considering our knowledge of the migratory habits of rats, a very illogical theory at best. Wild animals out in the open spaces, such as rabbits, may very well be destroyed by converging "drives" but it is inconceivable that rats within a community can be dealt with similarly by encircling trap lines. Service experience and observation in the San Francisco campaign of 1907, Porto Rico, 1912, and New Orleans, 1914–1916, clearly showed that the migration of rats tends to spread the infection throughout the community and that there is no "heading off" the infection short of creating widespread areas unfavorable to the extension of the infection. Trapping operations covering the entire community not only maps the progress of the infection, but even more, by reducing the rodent population, prevents the ingress of infection into areas not yet infected.

CHART 1.



The East Bay cities were found to be not badly rat infested, and, with the exception of the garbage dumps, had but few large rat centers. The maximum weekly rat catch was 3,123, made in the week ending March 21, 1925, and thereafter the catch steadily declined. To July 1, 56,232 rats (mice not included) had been captured or picked up dead. The number of rats picked up dead, however, was negligible—probably less than 100. Of the total rat catch, 47,169 were *M. norvegicus*, 428 *M. alexandrinus*, and 652 *M. rattus*, the remaining 8,000 being unclassified in early days of campaign, but for the most part were Norway rats. Chart No. 2 shows progress of rat catch in Oakland (exclusive of Alameda and Berkeley). As the

CHART 2.



rat catch fell, the mouse catch increased, due probably to the marked reduction in the number of the larger species, their natural enemies. This contrast is also well shown in Chart 1, illustrative of the trapping at the West Oakland dump.

One striking aspect of the rat catch was the very small population of *M. rattus* and *M. alexandrinus*. About 2 per cent of the total catch was of the latter species. This was due presumably to the fact that Oakland's maritime commerce is for the most part with other ports of the United States—coastal and intercoastal shipping. Comparatively few of the vessels docking at Oakland wharves come from oriental or other foreign ports.

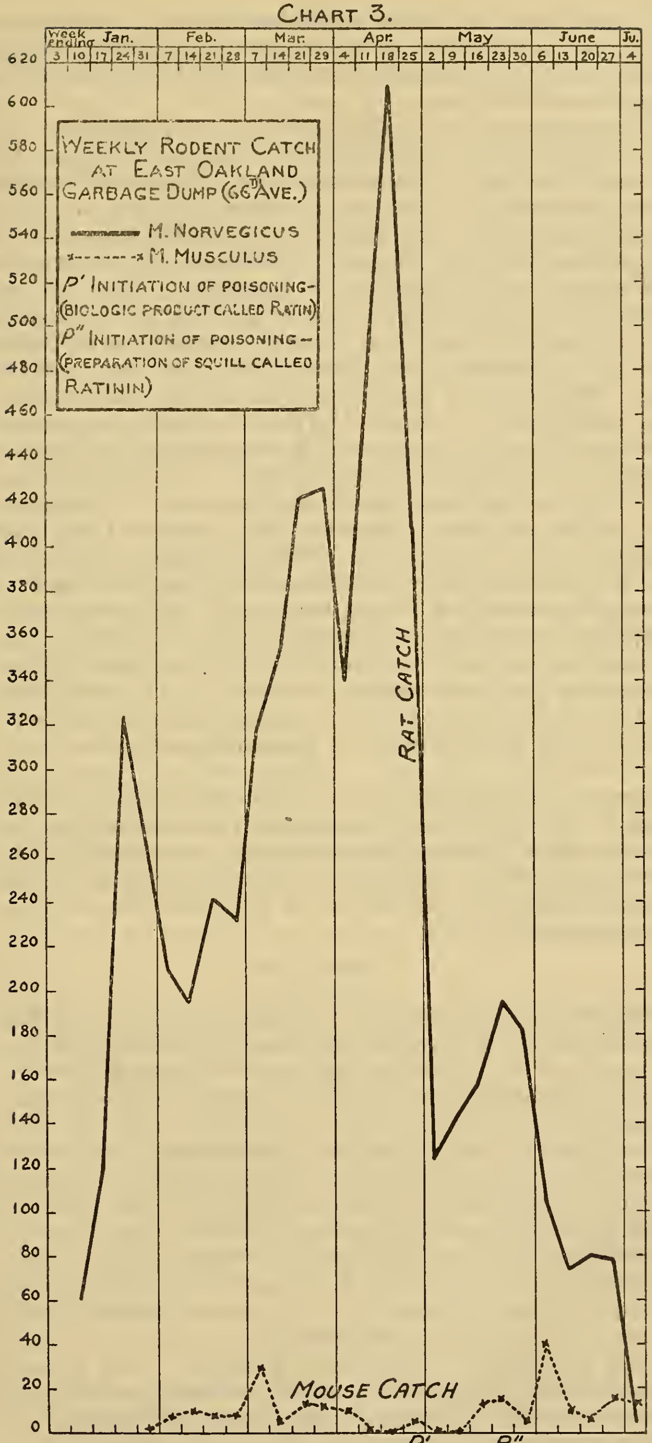
Reverting to Chart 1, several interesting features may be noted. In January and February the mouse catch at the West Oakland dump was so negligible as not to be counted. By April 1, however, it had risen to an average of 40 per week, crossing the curve of rat catch, and in early May reached a weekly average of 160, in contrast to the rat catch in the same period of less than 40 per week. This mouse increase was continuous from March 1 to June 1, despite intensive poisoning of the dumps during the period March 8 to March 28. It can only be attributed to an actual increase in the mouse population due to the removal of their natural enemy, the *M. norvegicus*. The mouse catch served as a reliable index of trapping efficiency and also of the actual reduction in the Norway rat population. The phenomenon has been noted in previous campaigns, but was specially marked in this circumscribed, isolated rat center.

The increase and decline of the rat catch at the West Oakland dump was likewise interesting. From January 10, the date when trapping operations were well under way, until February 28, a period of seven weeks, a mean average of 170 rats per week was obtained. Following this period of seven weeks a steady decline was maintained for five weeks. From that time, April 4, till May 23, another period of seven weeks, the weekly catch continued at a fairly even average of forty per week, and then there ensued a secondary decline. The question arises as to the reason for the fixed time element of seven weeks as operative in the sudden fall of the rat catch. One possible explanation is the fact that from date of conception, including gestation of three weeks, to the date when the young rats leave the nest and begin foraging, there elapses a period of approximately seven weeks. Following up this theory, therefore, it will appear that the effect of non-reproduction (diminution of young rats) is not operative until the eighth week of trapping and that thereafter this cause of lower rat catch would be cumulative. However, this is not entirely true, because the decline ceased after five weeks and for another period of seven weeks the average weekly catch continued rather evenly before the secondary decline. No plausible explanation occurs for this check in fall of rat catch.

Special consideration can be attached to this study of conditions at the West Oakland dump because it was an isolated area and not materially influenced by migration either from or to the site and no apparent variable conditions arose to confuse the study until the middle of June, when the dumps caught fire, destroying most of the combustible material, including foodstuff for rats.

Chart 3, illustrative of rat catch at the West Oakland dump, is presented chiefly to show the influence of poison upon rodent popu-

CHART 3.


Week ending
Jan. 3 10 17 24 31
Feb. 7 14 21 28
Mar. 7 14 21 29
Apr. 4 11 18 25
May 2 9 16 23 30
June 6 13 20 27
Ju. 4
620
600
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
WEEKLY RODENT CATCH AT EAST OAKLAND GARBAGE DUMP (66th AVE.)
M. NORVEGICUS
M. MUSCULUS
P' INITIATION OF POISONING—(BIOLOGIC PRODUCT CALLED RATIN)
P" INITIATION OF POISONING—(PREPARATION OF SQUILL CALLED RATININ)
RAT CATCH
MOUSE CATCH
P'
P"

lation. There were too many variables arising from time to time to permit of any conclusions as to trapping operations excepting the steady decline that evidently took place. The effect of poisoning will be discussed later on.

Chart 2 shows the general decline in the rat population of Oakland and the corresponding increase in the mouse population. In this extensive area of seventy square miles, the influence of "nonreproduction" was not so sharply marked as shown in Chart 1. The effect of migration of rats within the city limits probably tended to make for a more gradual decline. January 1 to June 30 the trapping force obtained approximately 55,100 *M. norvegicus*, 1,080 *M. rattus* and *M. alexandrinus*, and 13,114 *M. musculus* (mice). When the force was fully organized, there were 12 trapping districts in Oakland, 4 in Berkeley, 2 in Alameda, and 1 in Emeryville, each supervised by foremen. Trappers on an average had 125 snap traps. Some, however, managed 200 traps. Only a few cage traps were utilized and those chiefly for the purpose of procuring live rats for flea survey or otherwise for experimental purposes. The fluctuation in the number of traps depended upon the character of territory. In a sparsely settled residential district with scattered rat population, the trapper has to cover a proportionately larger territory than one who has a district thickly populated with rats. In poor trapping areas, trappers attended to approximately 100 snap traps and in good trapping areas trappers handled as high as 200 traps.

The trappers were paid a salary of $110 per month plus a bonus of 10 cents for each rat caught in excess of 150 rats each month. That is to say, the bonus was not operative if the trapper failed to average 150 rats per month or a proportionate catch for a shorter period.

The turnover in trappers in this campaign, as in previous ones, has been heavy. Men frequently undertook the work with no realization of the demands of the position and many were found incompetent and discharged after a fair trial. From January 1 to July 1, 149 trappers were employed, although the maximum force did not exceed 60 and at present is 57.

POISONING

Poisoning was employed only on a limited scale for several reasons. The main objective in a plague-eradicative campaign is the destruction of rats and the reduction of the rodent population to a minimum, so as to create a condition unfavorable to the spread of infection amongst rats. While it is conceivable that the last plague-infected rat may be destroyed, the elimination of rodent infection is more probably due to the "failure of the rodent host," the rat population being so reduced and scattered that the last infected rat dies in an area in which there is no other rat which the liberated infected fleas may infest. In this manner the "carry over" ceases. While the creation of this condition is the main objective aimed at, it is imperative that the progress of the epizootic should at all times be known, and this is possible only with the continuous examination of rats in the laboratory. Trapping, therefore, is of paramount importance in order that a definite supply of rats be obtained for laboratory examination. Moreover, the results of trapping are definite and assured, whereas poisoning results are problematic.

Poisoning was carried out on the West Oakland dump from March 7 to March 28. The poison was phosphorous paste spread on pieces of bread and the poisoned bait was very thoroughly distributed about the dump each day. While there appeared to be a subsidence in the rat catch, coincident with poisoning, at the same time very few dead rats were picked up despite thorough search. All told, not more than 15 dead rats were obtained subsequent to poisoning. It is true that the rat catch continued to diminish, but the rat catch had already entered into a definite decline, as can be seen from Chart 1. In the two weeks prior to poisoning, there had been a weekly decline of almost 50 per cent. Judging from subsequent trapping, the poisoning showed nothing of particular value in reducing the rodent population in the West Oakland dump.

At the East Oakland dump (Chart 3) a biologic poison known as Ratin was employed, more or less in the nature of an experiment. This product is a viable culture of the paratyphoid group, culturally and morphologically resembling Gaertner's organism. On April 22 the dump was poisoned by pieces of bread soaked in a liquid culture of the organism. In the previous week the rat catch had dropped from 620 to 420, so the result of this poisoning could not definitely be evaluated, although the decline continued. The trappers were able to recover only 16 dead rats. Subsequent to poisoning, the catch continued to fall, finally reaching a minimum of 120 per week. Whether this was due to poisoning or to intensive trapping of the previous two months, can not be definitely stated.

The writer is of the opinion that the poisoning was of no great value. Certainly there was no evidence of a sustained epizootic of a gastro-intestinal infection such as is claimed by the commercial firm engaged in marketing the product. Following this decline the rat catch increased from 122 per week to 196 per week and at the latter date, May 20, the dump was again poisoned by a "follow-up" preparation called Ratinin—a preparation of squill. There immediately ensued a drop in the rat catch, presumably due in part to the poison. In three weeks the rat catch fell from 196 per week to 76 per week, and 8 dead rats were picked up and a number of sick rats killed by the trappers.

While the result of poisoning this dump was not particularly striking and showed no point of advantage over trapping (which was continued concurrently with the poisoning), it did seem evident that the poisoning by squill was of distinct value.

At least two of the commercial firms engaged in marketing so-called "rat viruses" that are claimed to create an epizootic gastroenteritis in rodent population, advocate and practice a system of double poisoning, the first by a virus, the second by chemical poison. It seems pertinent to suggest at this time that whatever value these "systems" possess, is probably due to the chemical poison, not to the virus, and that the former could be used just as effectively and much more cheaply, under their correct designation rather than as a proprietary product.

EPIZOOTIC

Prior to the inauguration of control measures, 11 infected rodents, all *M. norvegicus*, had been reported from the West Oakland dumps. Subsequent to institution of control methods, 10 infected rats were captured. These likewise were of the Norway species and with one exception were all from the dump.

The determination of the source of the infection is, at this time, of academic interest only, and of necessity is largely speculative. In the beginning several possible sources were considered. The infection might have been introduced from a ship docking at the wharf (Parr's Terminal) located about one-fourth mile from the dump. Ordinarily this would have been the most natural assumption, but several factors cast a degree of improbability on this theory. In the subsequent trapping no infected rat was ever taken from Parr's Terminal or from a large flour mill adjacent thereto. Furthermore, most of the shipping at Parr's Terminal is coastal or intercoastal and from domestic ports. During the previous five months, i. e., from July 1, only nine vessels from ports of the Orient or South America touched at this wharf. All were fumigated and none were found to be materially rat infested; in fact, nine rats was the greatest number killed on any of them. It is possible that the infection may have been transmitted from San Pedro (Los Angeles) on a coastwise vessel. If the infection were ship borne, however, it seems very strange that San Francisco was not likewise infected, since, for any one vessel docking at the West Oakland water front from any foreign port, there are 10 vessels from the same ports wharfing at the San Francisco water front, and although 33,264 rats have been examined in San Francisco (chiefly from water-front sections or areas adjacent thereto) no infection has been found among them.

At first some importance was attached to the probability of the infection having been introduced to the dump from the interior of Oakland or suburbs, indirectly due to squirrel infection.

Householders generally dispose of dead rats or carcasses of small animals found on premises by depositing them in the garbage can, and an infected rat or squirrel so disposed of (with infected fleas attached) could very well have started an epizootic at the dump. An exacerbation of squirrel infection was known to have occurred during the summer of 1924, at least in the counties to the southward, and the condition of the Alameda County squirrels was not definitely known, since no laboratory examination of them had been made for several years. As late as September, 1919, infected squirrels were found in the outskirts of Berkeley and in July, 1922, squirrel infection was known to exist in Dublin Canyon, a few miles east of Oakland city limits.

An intensive survey of the squirrels in suburbs of Oakland and Berkeley and outlying districts failed to show any infection; 4,822 squirrels were killed and examined in the laboratory. None were infected.

It is possible that the infection at the West Oakland dumps may have existed for a long period, a reservoir established in previous years. In any event the source of the infection remains more or less puzzling and indeterminate.

One infected *norvegicus* was taken from a junk yard at Fourth and Madison Streets, on February 13. This apparently was a migratory rodent from the original focus, since no other infected rats were found in that neighborhood. The junk yard is located approximately 1 mile from the dump. The intensive trapping of this area during preceding six weeks had substantially reduced the rat population, thus rendering conditions less favorable for spread of the infection in that locality.

The last infected rat was taken on March 3 from the West Oakland dump. Since that date 37,533 rodents have been captured and examined. At the time of this report it seems probable that the infection has been eliminated, but the tenacity of rodent plague is so well known that any prediction of this nature must needs be made with considerable reservation.

LABORATORY

In view of the fact that the Public Health Service had a well-organized laboratory operated in San Francisco, fully equipped and amply staffed, it seemed the wisest course not to attempt the establishment of a separate laboratory in Oakland, but rather to arrange for the utilization of the San Francisco laboratory for examination of the Oakland rat catch.

Elsewhere in the Surgeon General's report will appear Surgeon Wayson's detailed report of laboratory activities, and it will not be included herein.

Briefly stated, however, 55,965 rodents were examined from the East Bay community, of which 44,847 were *M. norvegicus*, 428 *M. rattus* 652 *M. alexandrinus*, and 4,759 ground squirrels (*C. beechyi*). Twenty-one infected rats were detected, all presenting lesions of acute or subacute plague. No infected rats of the "resolving" type were observed. No infection in squirrels was found.

OUTGOING QUARANTINE

Upon appearance of the infection in Oakland, appropriate steps were taken to prevent the spread of the infection through outbound vessels. A system of water-front inspection was inaugurated and all vessels lying at wharves at Oakland, Berkeley and Alameda were required to be fended off with rat guards on mooring lines. Fumigation of these vessels was required, but in order to mitigate hardships on coastwise traffic and also to avoid needless and excessive fumigation, no vessel was required to be fumigated oftener than once in three months provided that in the meantime it was properly fended off with the lines rat guarded.

In April, after a thorough survey demonstrated that there was no infection in Alameda, the restrictions against vessels docking at Alameda wharves were removed. The number of vessels fumigated in accordance with the outgoing quarantine requirements are included in the transactions of the Angel Island Quarantine Station.

Not infrequently a vessel subject to fumigation because it had been at an Oakland wharf was also subject to fumigation because of having come from some plague-infected port of the Orient or South America, and for this reason no attempt was made to segregate the number of vessels fumigated, based on incoming and outgoing quarantine transactions.

CONCLUSIONS

The one regrettable feature of the campaign has been the failure thus far of the city of Oakland to discontinue the Fourteenth Street dump. This huge heap of garbage and refuse is a blot upon the landscape, a nuisance through the breeding of rats and flies, and a consequent sanitary menace. It would be a reflection on any city, and its continued maintenance is the one thing that tends to throw some doubt upon the eradication of plague infection in Oakland. There has been more or less discussion as to remedying the condition, and it is understood that the city is committed to a change whereby garbage will be dumped at sea. Tentative efforts in this direction have been made, but as yet nothing definite has been done toward consummation of plans for disposal of garbage at sea.

Acknowledgement is made to the various officials of the city governments in the East Bay community for their cordial cooperation. They have been most responsive to all requests for assistance, and it is a pleasure to state that the satisfactory results thus far obtained in the sanitary campaign have been due in no small degree to the cheerful cooperation of the officials of the cities in the East Bay community.

PLAGUE ERADICATIVE MEASURES IN NEW ORLEANS, LA.

Rodent plague has made its appearance in New Orleans on three occasions, first in 1914, again in 1919, and finally in 1924.

This report has to do with a rodent-plague survey undertaken by the service in cooperation with the Louisiana State and New Orleans city boards of health during the period from December, 1924, to the close of the year ending June 30, 1925, in which an effort has been made to locate and determine the extent of this most recent infection.

Owing to the continued absence of rodent plague, the second campaign of suppressive measures was discontinued on June 30, 1923.

Precautionary quarantine measures were continued and a limited trapping force was maintained by the city board of health, which also continued the laboratory examination of rats.

The occurrence of a case of human plague on board the steamship *Atlanticos*, arriving in New Orleans on October 27, 1924, and the subsequent finding of plague-infected rats on this vessel and the steamship *Craftsman*, which arrived on November 12, 1924, led to the intensification of trapping along the water front on and near the wharves where these vessels had docked.

On December 2, 1924, a report of positive plague was made from a combination inoculation of five rats and three mice, captured under the wharves from Lafayette Avenue to Piety Street, on November 22, 1924.

Following a conference between service officers and State and city health officials, the situation was reported to the Surgeon General.

On December 5, 1924, the president of the State board of health invited the service to assume charge of the situation, and requested a survey. This was promptly agreed to, and steps were taken to provide means and personnel. A commissioned officer was assigned for temporary duty under the general direction of the director of district No. 4.

Other rodent plague cases were reported on December 6, 10, and 16, 1924. By this date a total of five cases had been recognized. These were recovered from two distinct foci located approximately 3½ miles apart.

On December 10, 1924, out-going quarantine activities, comprising fumigation and enforcement of the regulations for fending off and rat guarding of vessels, were transferred from the quarantine station to the general jurisdiction of the district director, and by him attached to the rodent plague survey.

The organization of the survey went forward rapidly, and on December 16, 1924, the first regular rodent catch was turned in to the laboratory.

On December 20, 1924, Surg. C. V. Akin began his duty as medical officer in charge of the survey.

The various phases of the work will be taken up under separate headings and a statistical summary of all activities will be appended as a part of the report.

Outstanding features of the report will be briefly analyzed, but no attempt will be made to draw conclusions from the findings, as the survey has not yet been completed.

TRAPPING OPERATIONS

Trapping force.—By December 15, 1924, a force of over 100 men was in the field. The plan of organization covered a number of squads, each under the direction of an experienced foreman. A group of such squads operated under the immediate direction of a chief trapper, and all were under the supervision of an inspector.

During the period of 174 days, from December 16, 1924, to June 30, 1925, the following trapping personnel was actively engaged daily: 1 inspector, 2 to 3 chief trappers, 16.3 foremen, and 115.3 trappers. These figures are computed from the daily time sheets and represent the daily average of personnel in the field.

Trapping area.—In the beginning, trapping was intensified along the water front. Through gradual extensions more and more territory was covered until the end of the year, when approximately 40 square miles (10 water front by 4 inland) were being trapped.

Special attention has been paid to new rodent-plague foci, and all of the old locations furnishing infected rats in former campaigns have been thoroughly combed.

Rodent catch.—A total of 203,570 rodents have been captured, fumigated, and found dead in 174 days. Of this number, 135,480 rats have been examined in the laboratory. In the section of this report devoted to the laboratory, a table will be found showing the percentage distribution of rats examined by species and sex.

A comparison of the total catch with the number of trapping days utilized shows the following daily averages:

Total rodents captured	203, 570
Total rats examined	135, 480
Trapping days	174
Trappers (daily average)	115. 3
Average daily rodent catch	1, 169. 3
Average daily rat catch	778. 6
Rodents per man per day	10. 1
Rats per man per day	6. 7

LABORATORY OPERATIONS

Laboratory.—The rodent-plague laboratory is under the personal direction of Dr. W. H. Seeman, bacteriologist for the State and city boards of health.

Special personnel consisting of one chief and four assistant technicians, a clerk, and a janitor were employed by the service at the beginning of the survey.

On January 1, 1925, this personnel was transferred to the pay roll of the city board of health. Since that date, the entire cost of laboratory operations has been met by the State and city health boards.

Examination of rats.—Rats are collected from all parts of the city once daily and delivered to the laboratory by noon. This catch is worked up by noon of the following day, when the next delivery is received.

An experienced technician inspects and dissects all rats. Smears are made from all suspicious lesions and animal (guinea pig) inoculations are resorted to in every instance.

Combination inoculations begun early in the survey were discontinued on December 22, 1924, but were resumed on March 12, 1925.

Distribution of rats examined by species and sex.—According to the laboratory reports, the following differentiations of species and sex were made (diagnosis made after dissection).

Species	Male		Female		Total	
		Per cent		*Per cent*		*Per cent*
M. Norvegicus	55,276	46.3	64,110	53.7	119,386	88.1
M. Rattus	2,701	44.6	3,355	55.4	6,056	4.5
M. Alexandrinus	4,484	44.7	5,548	55.3	10,032	7.4
Total	62,461	46.1	73,013	53.9	135,474	100.0

Plague rats.—Two groups of plague-infected rats were recognized. All infections were diagnosed "acute plague":

(*a*) Five rats reported from December 2, 1924, to December 16, 1924:

1. December 2. Combination inoculation, Lafayette and Piety Streets wharves.
2. December 2. Combination inoculation, Washington Avenue wharves.
3. December 6. Combination inoculation, Lafayette and Port Streets wharves.
4. December 10. Combination inoculation, Lafayette and Press Streets wharves.
5. December 16. Single rat, Lafayette Street wharves.

(*b*) Seven rats reported from January 12 to 17, 1925:

6. January 12. Single rat, 2010 Sixth Street.
7. January 12. Single rat, 525 Julia Street.
8. January 14. Single rat, Gov. Nicholls Street wharf.
9. January 14. Single rat, Stuyvesant Docks, elevator E.
10. January 15. Single rat, Conti Street wharves.
11. January 17. Single rat, 3510 Camp Street.
12. January 17. Single rat, 1703 Religious Street.

The above 12 rats were taken from three water front and five inland locations, in the latter the distance from the water front varying from one-fourth to 2 miles.

On January 17, 1925, the day the last plague rat was reported, a total of 18,434 rats had been captured. From that date to June 30, 1925, 117,046 rats were examined with no further evidence of infection showing.

OUTGOING QUARANTINE

On December 10, 1924, the quarantine fumigation plant was transferred from the jurisdiction of the quarantine station to that of the rodent plague survey.

The fumigation of vessels is under the immediate supervision of Acting Asst. Surg. R. E. Bodet.

An analysis of the figures of vessels fumigated shows three distinct time periods in each of which the requirements for fumigation varied.

First period.—December 16, 1924, to March 4, 1925, when all coastwise vessels were required to fumigate each trip to New Orleans. During the 79 days of this period, 350 ships were fumigated, giving a daily average of 4.43 vessels.

Second period.—March 5, 1925, to April 2, 1925, during which time coastwise vessels were fumigated only once in 30 days. During the 29 days of this period, 123 ships were fumigated, giving a daily average of 4.24 vessels.

Third period.—April 3, 1925, to June 30, 1925, when coastwise vessels docking in New Orleans were required to fumigate only once in 90 days. During the 89 days of this period, 250 ships were fumigated, giving a daily average of 2.81 vessels.

The following table gives the daily number of vessels fumigated:

On 12 days 0 vessel was fumigated	0
On 14 days 1 vessel was fumigated	14
On 24 days 2 vessels were fumigated	48
On 35 days 3 vessels were fumigated	105
On 51 days 4 vessels were fumigated	204
On 31 days 5 vessels were fumigated	155
On 16 days 6 vessels were fumigated	96
On 12 days 7 vessels were fumigated	84
On 1 day 8 vessels were fumigated	8
On 1 day 9 vessels were fumigated	9

On 197 days 723 vessels were fumigated. As no vessels were fumigated on 12 days, the general average is obtained by comparing the total number of vessels with the number of days on which ships were actually fumigated, 185. The daily average is 3.9 vessels.

Fumigating organization.—The regular fumigating personnel assigned to New Orleans, consisting of 1 chief and 7 assistant fumigators, was supplemented by the employment of 14 additional men.

Through an arrangement with the New Orleans Steamship Association, the cost of this new personnel, together with other expenses of transportation, equipment, and supplies, was transferred to the association on January 1, 1925.

Since that date the association has billed agents direct for fumigation charges, and the service has thus been saved not only much expense but a great deal of effort.

It should be stated at this point that the operation of the aforesaid arrangement has been extremely gratifying to the service officers and employees engaged in this work, and there is much evidence of satisfaction on the part of ship's agents because of the saving of time and expense.

The service has retained full control and supervision of fumigation. A high standard of performance has been maintained, owing to the constant helpful cooperation of the steamship association and of the individual agents as well.

The average cost of fumigation is estimated to be approximately $70 per vessel.

Port sanitary regulations.—Since December, 1924, the requirements of paragraphs 101 and 102 of the United States quarantine laws and regulations regarding the fending off and rat guarding of vessels have been rigidly enforced.

On December 22, 1924, Passed Asst. Surg. R. R. Tomlin was given immediate charge of this work. With the assistance of a chief inspector and four daytime and one night inspector, a 24-hour patrol of the entire water front has been maintained.

On March 11, 1925, Passed Assistant Surgeon Tomlin was relieved from duty with the rodent plague survey and attached to the New Orleans boarding station, a part of the incoming quarantine station. The work begun by Doctor Tomlin has been continued by the chief inspector.

In the conduct of this activity a total of 2,463 separate vessels have been inspected, a total of 7,671 times.

Transportation.—Adequate transportation is vital in all phases of the survey and fumigation work.

The regular collection and prompt delivery of rats to the laboratory is an item of prime importance. Rapid transportation to expedite the handling of vessels to be fumigated is essential.

Sufficient motor transport has been furnished by the service, the State and city boards of health, and the steamship association.

Financial.—The cost of the rodent-plague survey has been borne by the Public Health Service and the State and city health boards.

Summary.—1. Twelve plage-infected rats were recognized from December 2, 1924, to January 17, 1925. Three water-front and five inland locations were involved. Rat No. 1 and rat No. 2 were trapped on the water front at a distance of approximately 3½ miles apart. Rat No. 6 was trapped at a distance of about 2 miles inland.

2. One hundred and seventeen thousand and forty-six rats have been examined since the last plague rat (No. 12) was diagnosed on January 17, 1925. Although 947 of these rats were considered suspicious, none were infected.

3. One thousand nine hundred and thirty-six rats have been killed during the fumigation of vessels. None of these were plague infected.

4. After all items of expense for the survey were included, it appears that each rat delivered to the laboratory for examination cost $0.966.

Acknowledgements.—Grateful acknowledgement is made of the constant support and assistance given by Dr. Oscar Dowling, president of the Louisiana State Board of Health, and by Drs. E. L. Leckert and W. H. Robin, superintendents of public health for the city of New Orleans, during the portions of two administrations covered by this report.

The able and generous services rendered by Dr. W. H. Seeman, bacteriologist in charge of the rodent-plague laboratory, merit the highest praise. The quality of research work done under Doctor Seeman's direction is such as to insure the complete confidence of all concerned. The successful operation of this phase of survey activity is due in great part to his initiative and effort.

The Public Health Service is most appreciative of the unselfish cooperation of the New Orleans Steamship Association. The success of the application of port sanitary regulations and of the fumigating procedures is largely due to these officers.

TRANSACTIONS, DECEMBER 16, 1924, TO JUNE 30, 1925

Outgoing quarantine:			
Number of vessels inspected			2,463
Number of inspections made			7,621
Number of vessels fumigated with cyanide gas			884
Cyanide consumed by pounds			76,539
Sulphuric acid consumed by pints			113,199
Fumigation certificates issued			884
Clean bills of health issued		1,479	
Foul bills of health issued		304	
Total number of vessels clearing			1,783
Bills of health issued, including additional ports of call			3,956
Field operations:			
Number of rodents fumigated—			
Mus norvegicus		6	
Mus rattus		761	
Mus alexandrinus		1,057	
Mus musculus		107	
Wood rats		0	
Miscellaneous		0	
Putrid		5	
			1,936
Number of rodents found dead—			
Mus norvegicus		2,222	
Mus rattus		132	
Mus alexandrinus		174	
Mus musculus		3	
Wood rats		0	
Miscellaneous		0	
Putrid		25	
			2,556
Number of rodents trapped on vessels	1,819		
Number of rodents trapped on and under wharves	8,980		
Number of rodents trapped on premises	188,279		
Mus norvegicus		118,922	
Mus rattus		5,163	
Mus alexandrinus		8,879	
Mus musculus		66,067	
Wood rats		4	
Miscellaneous		0	
Putrid		43	
			199,078
Total number of rodents captured			203,570
Number of buildings fumigated			3
Pounds of cyanide used			1,615
Pints of sulphuric acid used			2,440
Total cubic feet of space fumigated			1,534,750
Premises inspected			116
Square yards of planking removed			400
Laboratory operations:			
Rodents examined—			
Mus norvegicus			119,386
Mus rattus			6,056
Mus alexandrinus			10,032
Mus musculus			0
Wood rats			6
Miscellaneous			0
Putrid			0
			135,480

Total rodents received at laboratory	203, 570
Number of suspicious rats	1, 230
Number of positive rats	12
Suspicious human cases examined	0
Positive human plague cases	0
Number of human plague cases to date	0
Number of rodent plague cases to date	12
Number of rodents captured to date, 174 trapping days	203, 570
Number of rodents examined to date	135, 480

PLAGUE-PREVENTIVE MEASURES, SEATTLE, WASHINGTON

Water front

Vessels inspected, for fending and rat guarding	623
Vessels fumigated	186
Sulphur used — pounds	141, 903
Cyanide used — pounds	17, 810
Muriatic acid used — pints	72, 876
Number of cubic feet fumigated	59, 227, 000
New rat guards installed	91
Defective rat guards repaired	185
Port sanitary statements issued	3, 604

The usual patrol was maintained to enforce rat guarding and fending on all vessels arriving from plague-infected ports.

Laboratory operations

Dead rats received	29
Rats trapped and killed	13, 170
Rats after fumigation	1, 629
Total rats	14, 799
Rats examined for plague infection	9, 841
Rats proved plague infected	0
Blocks poisoned	52
Poison disbursed — pounds	442
Sanitary fills poisoned	10

Classification of rodents

Mus rattus	762
Mus alexandrinus	2, 919
Mus musculus	1, 802
Mus norvegicus	9, 316
Average number of traps in use daily	610

TRACHOMA ERADICATION WORK

At the beginning of the fiscal year 1925, four trachoma hospitals were in operation at the following places: Knoxville, Tenn.; Russellville, Ark.; Pikeville, Ky., and Rolla, Mo. A fifth hospital was opened at Eveleth, Minn., on September 25, 1924, utilizing the equipment formerly in use at the hospital at LaMoure, N. Dak., which was closed in December, 1922.

On November 1, 1924, Surgeon John McMullen, who had been in charge of the trachoma-eradication work since its beginning in 1912, was relieved from that work and transferred to New Orleans for duty as director of public health district No. 4. Passed Asst. Surg. Paul D. Mossman, who had been on duty at the central office since July 1, 1923, succeeded Surgeon McMullen in charge of the trachoma work.

PIKEVILLE, KY., TRACHOMA HOSPITAL

The trachoma hospital at Pikeville, which was opened in September, 1916, was closed May 15, 1925. The mountain town of Pikeville is in a very rough, inaccessible region, with poor roads and traversed by only one railroad, a branch of the Chesapeake and Ohio. The hospital equipment was brought to Pikeville by wagon from Hindman, where the hospital had been in operation for three years.

The hospital was closed because all persons within a reasonable distance of Pikeville who desired treatment for trachoma had had an opportunity to receive it during the period of its operation lasting for more than eight years. At the time of closing, the average distance traveled by patients coming to the hospital was approximately 200 miles.

There is still a great deal of trachoma in eastern Kentucky, and an effort will be made to continue the operation of at least one hospital in that State whenever substantial State and local cooperation are forthcoming. It is believed that if the hospital is reopened, it should be placed in some city that is readily accessible by rail to the large section of eastern Kentucky where trachoma is prevalent.

ROLLA, MO., TRACHOMA HOSPITAL

The hospital at Rolla was opened July 24, 1923. The prevalence of trachoma in Missouri was shown by the report of the survey made by Passed Asst. Surg. J. W. Mountin and by the statistics relating to beneficiaries of the blind pension law of the State. Doctor Mountin's survey showed that the disease was very prevalent in the majority of the counties south of the Missouri River. Nearly 21 per cent of all persons drawing pensions on account of blindness were blind as a result of trachoma, according to the records of the specialists who examined these persons before the pensions were granted. Over 700 persons were found to be drawing $300 per annum in consequence of this disease.

The State health department became intensely interested in the trachoma problem, and the State legislature made a generous appropriation to assist in trachoma prevention. The citizens of Rolla have given cordial and substantial cooperation in the establishment and maintenance of the hospital. The rent of the hospital building during the first year of its operation was paid by the Rolla Chamber of Commerce.

The Missouri School of Mines is located at Rolla, and valuable assistance has been given by the college authorities. They have provided space in one of the college buildings for the use of Miss Ida Bengston, of the Public Health Service, who is conducting intensive laboratory studies in an endeavor to discover a bacterial cause of trachoma. The proximity of the laboratory to the hospital makes it possible for Miss Bengston to secure material for study from the hospital patients.

The Missouri State Health Department has given valuable cooperation in trachoma field work in that State. Most of the time of a doctor and a nurse from the State health department have been devoted to this work in arranging for clinics, searching for trachoma cases, and assisting in the clinics. Without this aid much of our clinic work would be impossible.

Fifty-four trachoma clinics were held during the year in different states. Of this number about 40 were in Missouri. The field clinics have been productive of good results. One great benefit is the education of the patients as to the nature of the disease and the importance of thorough treatment and personal hygiene. Many of these persons regard the disease as an evil to be borne without hope of relief. Cases without serious complications are operated on at the clinics, while more serious ones are referred to the hospital or to private specialists. On account of the uncertainty of home aftercare and the danger of serious reaction in complicated cases, many could not safely be operated on at the clinic.

The service trachoma work in Missouri in cooperation with the State health department has been so impressive that not only was the State appropriation for trachoma prevention approved by the legislature, but credit for passing without question the whole health department appropriation was given to the work which had been done on trachoma.

RUSSELLVILLE, ARK., TRACHOMA HOSPITAL

The hospital at Russellville, Ark., reports a considerable increase in the number of patients treated during the past year. This increase was due in large part to the persistent efforts of the doctor in charge, who has made many trips to outlying districts, giving talks and visiting sufferers in their homes. Many of the Russellville patients come in family groups, presenting a pitiful picture with advanced cases of trachoma in parents nearly blind and the disease in various stages of progress in the children. Their implicit faith in the "Government doctor" and their appreciation of his careful attention to their needs are apparent to any visitor. The leading citizens of the county are much interested in the hospital and have been quite active in its behalf.

KNOXVILLE, TENN., TRACHOMA HOSPITAL

The hospital at Knoxville is the first trial of the operation of a trachoma hospital in a city. Thus far it appears that patients come to a hospital in a city as readily as to a small town, and there are many conveniences in the city that were not available in the small towns where this hospital had formerly been located.

The building used for the hospital is provided by the health center, a charitable organization located next door to the hospital, which operates dispensary clinics and conducts district nursing. It is supported by community chest funds and also receives county and city assistance. The location next door to this health center has been very helpful, as its diagnostic and therapeutic facilities have been freely available to trachoma patients, who are sometimes sufferers from tuberculosis, hookworm, or other intercurrent diseases. The diagnostic laboratory at the health center is a branch of the laboratory of the State health department and has also given very valuable assistance. The State health department has shown the utmost cordiality toward the work. An appropriation by the Tennessee Legislature of $2,000 per annum for the coming two years has been made toward the conduct of the work.

EVELETH, MINN., TRACHOMA HOSPITAL

A trachoma hospital was opened at Eveleth, Minn., in September, 1924, in cooperation with St. Louis County, Minn. Complete surveys have been made in this and adjoining counties, and a considerable number of trachoma cases discovered and treated. The cooperation of State and county authorities has been generous and cordial.

Surveys have been made at the request of health authorities of several States in localities where the existence of trachoma in epidemic form has been suspected. In most instances it has been found that cases of folliculosis constituted the majority if not all of of the suspected trachoma cases. These surveys have been of value, however, in determining the actual prevalence of the disease and in instructing local physicians in making closer distinctions between trachoma and conditions simulating it.

A central office for the supervision of the trachoma work was first established at Lexington, Ky., in 1913, by Surgeon McMullen, who deserves great credit for organizing and building up the work. At that time the trachoma work was confined to the eastern part of Kentucky, and Lexington was the most convenient point for the central office. As time went on the work was extended into other States, some of which could not be conveniently reached from Lexington. Accordingly on August 1, 1919, the central office was transferred to Louisville. On May 13, 1925, the bureau ordered the transfer of headquarters to Rolla, Mo. A trachoma hospital has been in operation there since July, 1923. A research laboratory in charge of Miss Ida A. Bengtson has been conducted at Rolla for more than a year. It was contemplated that an officer should be detailed to conduct an epidemiological study of trachoma with headquarters at Rolla, and it was considered that supervision and correlation of all activities dealing with trachoma could best be conducted at the central office at Rolla. The assignment of the epidemiologist was unavoidably deferred, but it is hoped that this assignment can be made soon, as this phase of the work is believed to be of paramount importance. The transfer of the central office was under way at the end of the fiscal year.

On account of the important part which the nurses take in the conduct of trachoma work and the necessity for uniformity and maintenance of high standards of hospital routine, the bureau authorized the employment of a chief nurse, whose duties include instruction and discipline of the field and hospital nurses.

Dispensary and hospital relief, operations, etc.

	Eveleth, Minn.[1]	Knoxville, Tenn.	Pikeville, Ky.[2]	Rolla, Mo.	Russellville, Ark.	Total
DISPENSARY RELIEF						
Old cases, all causes	95	2, 395	703	330	1, 428	4, 951
Old cases, trachoma	59	2, 171	585	255	1, 147	4, 217
New cases, all causes	248	615	559	299	812	2, 533
New cases, trachoma	64	170	135	143	187	699
Total attendance	343	3, 010	1, 262	629	2, 240	7, 484
Total number of treatments	344	3, 029	1, 321	661	2, 295	7, 650
Average daily attendance	1. 23	8. 3	4. 13	1. 81	6. 28	----------
Impaired vision from trachoma	37	64	82	109	149	441
Corneal opacity from trachoma	29	22	44	102	84	281
Blindness both eyes from trachoma	0	0	0	0	0	0
Blindness one eye from trachoma	0	1	1	0	13	15
Ulcer from trachoma	4	13	17	25	10	69
Pannus from trachoma	17	15	40	127	71	270
Entropion from trachoma	10	13	12	43	53	131
Trichiasis from trachoma	10	2	1	32	44	89
Photophobia from trachoma	29	135	64	125	114	467
Conjunctivitis	25	230	78	97	277	707
Glaucoma	0	1	2	2	0	5
Trachoma cases cured [3]	15	2	3	0	10	30
HOSPITAL RELIEF						
Remaining from previous year	0	20	10	23	8	1
Admitted during the year	92	185	149	156	208	790
Discharged during the year	82	192	159	159	203	795
Remaining at close of year	10	13	0	20	13	56
Days relief furnished	1, 761	4, 891	4, 329	6, 674	5, 281	22, 936
Rations furnished	3, 167	6, 781	5, 874	8, 661	7, 119	31, 602
Cost of rations	$1, 598. 41	$2, 581. 54	$2, 754. 94	$3, 966. 29	$2, 860. 90	$13, 761. 27
OPERATIONS						
General anesthesia	0	1	22	13	20	26
Local anesthesia	56	202	208	131	157	754
Grattage	43	188	169	124	113	637
Entropion	14	9	36	20	45	124

[1] Opened Sept. 25, 1924.

[2] Closed May 16, 1925.

[3] Hospital cases which have been reexamined and found cured. Impossible to determine with any degree of accuracy the total number cured, since it is difficult to see and examine many of them once they are discharged from hospital for home treatment.

Educational work, house-to-house visits, etc.

	Eveleth, Minn.	Knoxville, Tenn.	Pikeville, Ky.	Rolla, Mo.	Russellville, Ark.	Total
Public talks given	5	0	0	7	12	24
Persons (estimated) in audiences	54	0	0	675	1, 192	1, 921
Pamphlets on trachoma distributed	40	118	33	115	364	670
House-to-house visits	3	0	0	0	12	15
Persons in houses visited	35	0	0	0	76	111
Trachoma cases in houses visited	6	0	0	0	5	11
Schools visited	62	7	4	3	4	80
Pupils examined in schools	2, 677	1, 632	1, 150	728	124	633
Trachoma cases in schools	1	33	12	0	0	46

Field clinics

Number of clinics held	54	Operations performed	331
Number of persons examined	7, 092	General anesthetic	37
Trachoma cases found	948	Local anesthetic	294
Suspicious cases found	26	Physicians present	288

Supervision of Water Supplies Used by Common Carriers

The supervision of water supplies used by interstate carriers for drinking and culinary purposes has been carried on in cooperation with State departments of health as heretofore. In all States maintaining efficient and adequate bureaus or divisions of sanitary engineering the work has been conducted by State personnel, but in the few States where assistance in the establishment and organization of divisions of sanitary engineering has been needed the Public Health Service has detailed one of its sanitary engineers temporarily to act in an advisory capacity.

Improvements in the physical features of water supplies usually result in a betterment of the quality of those supplies, with consequent reduction in water-borne diseases. Hence, constant supervision of the large number of common-carrier supplies has had a part in the general decrease in the typhoid fever death rate. The Public Health Service assisted the States in this work to the extent of making examinations of 76 different water supplies in the States of Nevada, Maine, Idaho, Arizona, and Wyoming. Twenty-two supplies were investigated in Nebraska, Arkansas, Colorado, Texas, and California.

For administrative purposes, the interstate sanitary districts were reduced from seven to six and placed under the supervision of sanitary engineers of the service, as shown in the detailed reports for each of the various distrcts.

INTERSTATE RAILROAD WATER SUPPLIES

On October 1, 1924, notice was given to all State health departments that only one certificate would be necessary on each common-carrier water supply during each fiscal year. This method reduced the work of the cooperating States by one-half. It is believed that during the next year further simplification of this procedure can be made by revising the certificate forms to permit of a "blanket" certification of supplies.

On January 1, 1925, the extension of time allowed the railroads for the installation of coolers of the two-compartment type expired. No check has yet been made on the percentage of rolling stock within the scope of the interstate quarantine regulations which is now thoroughly equipped, but such a check will be made during the coming fiscal year.

The American Railway Association has continued its close cooperation with this service on all matters affecting railroad sanitation. The American Short Line Railroad Association has also proffered assistance in matters with which its constituents are concerned.

The following table sets forth the number of sources of supply certified during the past fiscal year. Practically all of the water supplies of large cities have been approved, and, since the greatest travel takes place to and from those cities, the percentage of travelers who are safeguarded from impure water is somewhat larger than the percentage of supplies certified might indicate. Due to the time which frequently elapses from the date of receiving information relative to a source of supply and the field investigation of that supply, it is often impossible to complete the certification of such a supply in the same fiscal year as that in which the notification was received. Therefore, a percentage of certification of 95 or over can be considered as constituting an excellent record for the entire year.

Railroad supplies

State	Source classification				Certification status				Per cent sources acted upon
	Public[1]	Private[2]	Railroad	Total	Satisfactory	Prohibited	Provisional	Action pending	
Alabama	34	2	4	40	39	0	0	1	98
Arizona	14	1	11	26	6	0	0	20	23
Arkansas	41	15	22	78	17	1	0	60	23
California	51	13	38	102	62	0	0	40	61
Colorado	28	3	8	39	35	0	0	4	90
Connecticut	26	1	0	27	20	0	7	0	100
Delaware	6	0	0	6	6	0	0	0	100
District of Columbia	1	0	0	1	1	0	0	0	100
Florida	52	5	8	65	32	0	0	33	49
Georgia	56	2	0	58	52	0	0	6	90
Idaho	15	1	11	27	12	0	0	15	44
Illinois	73	8	30	111	66	2	39	4	96
Indiana	50	1	14	65	30	0	0	35	46
Iowa	63	1	21	85	58	1	0	26	69
Kansas	72	2	11	85	80	1	0	4	95
Kentucky	25	10	17	52	36	4	0	12	77
Louisiana	26	14	15	55	28	2	0	25	55
Maine	31	4	5	40	30	0	1	9	78
Maryland	15	1	5	21	13	1	5	2	90
Massachusetts	34	0	0	34	34	0	0	0	100
Michigan	61	6	25	92	91	1	0	0	100
Minnesota	46	2	40	88	59	6	0	23	74
Mississippi	31	12	9	52	43	0	0	9	83
Missouri	50	9	18	77	1	1	0	75	3
Montana	20	2	7	29	27	0	0	2	93
Nebraska	35	0	18	53	0	0	0	53	0
Nevada	8	0	13	21	21	0	0	0	100
New Hampshire	16	0	0	16	16	0	0	0	100
New Jersey	40	0	3	43	42	0	0	1	98
New Mexico	10	0	15	25	24	0	0	1	96
New York	98	7	22	127	85	3	10	29	77
North Carolina	55	7	9	71	40	0	17	14	80
North Dakota	15	3	10	28	0	0	0	28	0
Ohio	71	4	17	92	81	4	0	7	92
Oklahoma	45	2	13	60	3	0	1	56	7
Oregon	37	3	8	48	37	0	0	11	77
Pennsylvania	129	10	18	157	44	0	0	113	28
Rhode Island	2	0	1	3	3	0	0	0	100
South Carolina	35	2	1	38	28	0	0	10	74
South Dakota	20	1	11	32	12	0	0	20	38
Tennessee	24	9	11	44	26	0	0	18	59
Texas	112	11	50	173	70	0	29	74	57
Utah	14	5	4	23	16	0	0	7	70
Vermont	16	1	0	17	16	0	0	1	94
Virginia	41	5	5	51	45	1	3	2	96
Washington	34	6	20	60	7	0	0	53	12
West Virginia	23	15	11	49	43	3	0	3	94
Wisconsin	56	20	13	89	47	0	4	38	57
Wyoming	9	2	6	17	10	3	2	2	88
Total	1,865	229	598	2,692	1,593	34	118	947	65

[1] The column headed "Public" includes supplies owned by municipalities as well as those used by municipalities but owned by private companies.

[2] A "Private" supply refers to a small well or spring supply used only by the carrier and the person owning it.

INTERSTATE VESSEL WATER SUPPLIES

The supervision of water supplies used on board interstate vessels for drinking and culinary purposes and the supervision of the water supply systems on these vessels has progressed during the year, although a larger force could have been used to advantage in the conduct of the work.

The State health departments have cooperated as fully as possible in making investigations of such water supplies ashore, and many city health departments, cooperating with district engineers of the service, made numerous laboratory examinations of samples of drinking water taken directly from the vessels. This phase of the work is of special value to the district engineers, in that it gives a definite check on the inspection of the physical features of water-supply systems being used.

Where it has been found necessary, special investigations have been made of vessels owned by other Government agencies, such as those of the War Department Engineering Corps, the Coast Guard, and the United States Shipping Board.

Vessel and shipbuilding companies have cooperated in making recommended changes in piping systems and storage facilities on vessels.

The following table summarizes by States the data pertaining to the certification of water supplies ashore used by vessel companies:

Vessel supplies

State	Source classification				Certification status				Per cent sources acted upon
	Public[1]	Private[2]	Company	Total	Satisfactory	Prohibited	Provisional	Action pending	
Alabama	3	0	0	3	3	0	0	0	100
Arkansas	2	0	0	2	0	0	0	2	0
California	29	6	1	36	0	0	0	36	0
Connecticut	5	0	0	5	5	0	0	0	100
Delaware	1	0	0	1	1	0	0	0	100
District of Columbia	1	0	0	1	1	0	0	0	100
Florida	14	8	1	23	1	0	0	22	4
Georgia	3	0	0	3	3	0	0	0	100
Illinois	6	2	0	8	8	0	0	0	100
Indiana	4	0	0	4	4	0	0	0	100
Iowa	1	0	0	1	0	0	0	1	0
Kentucky	6	1	0	7	5	0	0	2	71
Louisiana	7	2	2	11	4	0	0	7	36
Maine	11	0	0	11	7	0	0	4	64
Maryland	3	1	1	5	3	0	0	2	60
Massachusetts	10	0	0	10	10	0	0	0	100
Michigan	13	0	0	13	13	0	0	0	100
Minnesota	1	0	0	1	1	0	0	0	100
Mississippi	5	1	0	6	4	0	0	2	67
Missouri	1	2	0	3	1	0	0	2	33
New Jersey	14	0	2	16	15	0	0	1	94
New York	12	0	0	12	7	0	0	5	58
North Carolina	5	2	0	7	5	0	0	2	71
Ohio	13	0	0	13	12	1	0	0	100
Oregon	14	1	0	15	0	0	0	15	0
Pennsylvania	8	2	0	10	5	0	0	5	50
Rhode Island	3	1	1	5	4	1	0	0	100
South Carolina	4	2	0	6	0	0	0	6	0
South Dakota	1	0	0	1	0	0	0	1	0
Tennessee	5	2	1	8	5	0	0	3	63
Texas	8	4	0	12	0	0	0	12	0
Vermont	1	0	0	1	1	0	0	0	100
Virginia	9	3	0	12	9	2	0	1	92
Washington	24	7	2	33	3	0	0	30	9
West Virginia	8	3	0	11	8	1	0	2	82
Wisconsin	1	0	0	1	0	0	0	1	0
Total	256	50	11	317	148	5	0	164	48

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[1] The column headed "Public" includes supplies owned by municipalities as well as those used by municipalities but owned by private companies.

[2] A "Private" supply refers to a small well or spring supply used only by the carrier and the person owning it.

DISTRICT NO. 1.—MAINE, NEW HAMPSHIRE, VERMONT, MASSACHUSETTS, RHODE ISLAND, CONNECTICUT, NEW YORK, NEW JERSEY, AND PENNSYLVANIA

Assistant Sanitary Engineer E. C. Sullivan continued in charge of this district.

The activities were similar to those of previous years with certain variations due to changing conditions and new problems. The main divisions of the work were as follows:

1. Supervision of drinking and culinary water supplies on vessels, including investigations as to the general sanitary conditions and detailed inspections of the drinking and culinary water-supply systems on such vessels.
2. Supervision of drinking and culinary water supplies used by railroads in interstate traffic including inspections of railroad coach-yards as to general sanitary conditions and methods employed in the handling of the drinking and culinary water.
3. Cooperation with State health departments in maintaining a uniform procedure for the certification of sources of water used for drinking and culinary purposes on interstate carriers and cooperation in other sanitary engineering matters.
4. Activities in connection with the control of typhoid fever cases involving vessels, such as reporting by local health departments, United States marine hospitals and quarantine stations, and the subsequent investigation of such cases when deemed advisable.
5. Miscellaneous activities, such as the collection and compilation of rodent-flea survey data, cooperation in an oyster-borne typhoid-fever investigation, and in shellfish sanitation investigations, and rendering assistance in other matters coming within the scope of the interstate quarantine regulations.

VESSEL WATER SUPPLY SUPERVISION

Inspections were made of 103 vessels, 18 of which had not previously been inspected as to compliance with the provisions of the interstate quarantine regulations for vessel water-supply systems. Forty-nine of the vessels inspected were passenger carriers, the remainder being freight vessels or water boats engaged in the delivery of water to other vessels. Improvements tending toward a closer compliance with the vessel water supply requirements, such as the installation of special tanks, pumps, and cooling systems, were made, when necessary, on the vessels which had not been inspected previously. Minor improvements, such as the discontinuance of the use of common drinking cups, the replacement of worn-out filling hose, and the relocation of drinking water taps in more suitable places, were found in some instances to be necessary through the reinspections of vessels. In dealing with some vessel companies, it has been found advantageous to take up at first the main requirements of a proper storage and distribution system for the drinking and culinary water. Later when compliance with these major and more expensive requirements has been obtained, the vessel companies are usually quite ready and desirous of carrying out the smaller minor requirements necessary from time to time for maintaining the vessel water-supply systems in proper condition.

The State Health Department of Massachusetts and the Philadelphia Health Department have cooperated during the year in the occasional collection and analysis of water samples obtained from water-boats operating at the ports of Boston, Mass., and Philadelphia, Pa., respectively. The New York City Health Department has continued its local supervision of water boats and excursion vessels in New York harbor. The laboratory of United States Marine Hospital No. 70, located in New York City, has continued making bacteriological analyses of water samples from vessels of the United States Lines, a subsidiary of the United States Shipping Board. One hundred and twenty-eight water samples obtained from these trans-Atlantic liners were thus analyzed during the year.

The cooperation with naval architects and ship construction companies has been continued in a satisfactory manner. The plans for several new vessels being constructed in this district were reviewed and recommendations for alterations or additions to the proposed designs of the drinking and culinary water-supply systems were made when necessary.

Action upon the part of a large oil refinery located upon the Schuylkill River at Philadelphia, Pa., was obtained for the installation of a water main to the docks of the company, thereby eliminating the need for a water boat which the company had maintained for supplying its fleet of oil tankers with water.

Table I.—*Summary of vessel water supply supervision*

Inspections:	
First inspections—	
Passenger	6
Freight	12
Reinspections—	
Passenger	43
Freight	42
Certificates issued:	
Regular, favorable—	
Passenger	46
Freight	39
Regular, unfavorable	0
Major conferences:	
With shipping officials	19
With others	21
Water analyses made at—	
United States Public Health Service laboratories	128
Other laboratories	7

There were 111 cases of typhoid fever involving vessels reported during the year by United States marine hospitals, United States quarantine stations, and local health departments. Fifty-seven of the cases occurred on vessels operating in foreign traffic, while 28 cases involved vessels operating in interstate traffic. Inspections and investigations were made of the vessels in connection with 28 of the cases. As shown in Table II, the number of typhoid-fever cases is considerably in excess of the number reported during the two previous fiscal years, although the number of cases per vessel is less than in previous years. The greatest number of cases from any one vessel was six, another vessel had four cases and four other vessels had three cases each. Nine vessels had two cases each, the remaining cases coming from individual vessels.

TABLE II.—*Summary of typhoid fever cases*

	Fiscal year		
	1923	1924	1925
Number of cases reported by United States marine hospitals and quarantine stations	47	55	84
Number of cases reported by local health departments	30	28	27
Number of cases in which conditions on vessel were investigated	33	30	20
Number of cases involving passengers	14	16	14
Number of cases involving crew	59	67	97
Number of foreign-owned vessels involved	21	20	22
Number of American-owned vessels involved	28	36	72
Number of United States Shipping Board vessels involved	5	5	5
Number of other Government-owned vessels involved	3	6	5
Number of cases involving vessels operating in interstate traffic	18	17	28
Number of cases involving vessels operating in foreign traffic	35	49	57
Number of vessels having more than one case	6	5	15
Average number of cases per vessel	1.33	1.24	1.18

RAILROAD WATER SUPPLY SUPERVISION

During field trips, observations were made as to the methods employed by the railroads in the supplying of water for drinking and culinary purposes to the coaches and dining cars. Detailed inspections were made of the New York Central Railroad and New York, New Haven & Hartford Railroad coach yards at New York City; the New York, New Haven & Hartford Railroad, and Boston & Albany Railroad coach yards at Boston, Mass., the Maine Central and Boston & Maine Railroad coach yards at Portland, Me.; the Maine Central Railroad coach yard at Bangor, Me.; and of several other small coach yards.

In cooperation with the State Health Department of Maine, surveys were made in May, 1925, of 17 water supplies in that State which were used as sources of drinking and culinary water by interstate carriers.

Conferences were had during the year with a number of State health officials of States located within this district in connection with the maintenance of a uniform policy for the certification of the water supplies used for drinking and culinary purposes by interstate carriers.

TABLE III.—*Summary of railroad water-supply supervision*

Inspections:	
Sources of water supply	19
Coach yards	8
Major conferences:	
With railroad officials	4
With others (principally health authorities)	29

MISCELLANEOUS

A considerable amount of time was spent during December, 1924, and January and February, 1925, in activities connected with the investigation of the cause of the increased typhoid fever incidence occurring just previous to that time in New York City, N. Y., Chicago, Ill., Washington, D. C., and other places. Detailed information was obtained from the New York City Health Department regarding the data collected by that department's personnel. Surveys were made of the Great South Bay, Long Island, oyster-producing section and likewise of the sewage-disposal system of a large State institution on Long Island believed to have a bearing on the situation. A survey was made also of such portions and factors involving the New York City water supply as might possibly be related to the epidemic in New York City. This investigation proved that no suspicion could be attached to the sanitary quality of the public supply.

Time was given in May and June, 1925, for surveys in the States of New Hampshire and Maine of the production of shellfish, particularly clams, the handling of the product, and the amount and distribution of interstate shipments. This work was done in connection with the shellfish sanitation investigation being conducted by the Public Health Service at the present time.

The rodent-flea survey which had been carried out in New York City in cooperation with the local health department since April 18, 1923, was discontinued March 1, 1925. Four thousand seven hundred and fifty-six rats were obtained during this survey, from which 4,408 fleas were collected and identified as to species.

In collaboration with Surg. Carroll Fox, a comparative report containing the rodent-flea survey data obtained in New York City, Boston, Mass., and New Orleans, La., was prepared and transmitted to the bureau for publication. In New York City, 70.7 per cent of the fleas examined were found to be *Ceratophyllus fasciatus*, and 23.4 per cent were *Xenopsylla cheopis*. In Boston, 64.4 per cent of the fleas examined were found to be *Ceratophyllus fasciatus*, while 33.2 per cent were *Xenopsylla cheopis*. For New Orleans, however, the percentage of *Ceratophyllus fasciatus* was 0.5 per cent, while *Xenopsylla cheopis* was 72 per cent. The report prepared gives detailed information concerning the data obtained.

DISTRICT NO. 2.—DELAWARE, MARYLAND, VIRGINIA, WEST VIRGINIA, DISTRICT OF COLUMBIA, NORTH CAROLINA, SOUTH CAROLINA, GEORGIA, AND FLORIDA

This district was in charge of Assistant Sanitary Engineer A. P. Miller during the entire fiscal year. Due to the location of this district headquarters, considerable time must be devoted to general sanitary engineering work of the Domestic Quarantine Division in addition to the duties pertaining strictly to the district work.

The activities of the district can roughly be divided into four major classifications: (1) Duties of an administrative nature pertaining to the sanitary engineering work of the Domestic Quarantine Division. (2) Supervision of water supplies used for drinking and culinary purposes on vessels, with special reference to the actual physical water-supply systems on the vessels. (3) Cooperation with the State health departments in the district in connection with the procedure followed in certifying water supplies used by common carriers and, upon request, special investigations. (4) Publication of the Public Health Engineering Abstracts, together with the dissemination of public health literature among technical workers in the public health field.

VESSEL WATER SUPPLY SUPERVISION

In order to obtain water-supply systems on vessels which will be acceptable under the interstate quarantine regulations, plans for approximately six new vessels were reviewed during the year. These systems were inspected before the vessels were commissioned in order to check the construction of the drinking-water systems. As in the past, city boards of health cooperated with this district in making bacteriological tests of water samples taken from boats engaged in interstate traffic and docking at the wharves of the several cities. The extent of each city's cooperation is indicated by the following tabulation of samples tested: Washington, D. C., 93; Baltimore, Md., 40; Wilmington, Del., 9; Wilmington, N. C., 38; Philadelphia, Pa., 3; Norfolk, Va., 1.

On the vessels in the jurisdiction of this district there occurred during the year six cases of typhoid fever. Several of these cases were investigated but found to be caused by conditions other than unsatisfactory water.

At the end of the fiscal year complete information had been received from all companies known to be located in this district. This completed tabulation showed that there were 66 vessel companies operating 163 vessels within the scope of the interstate quarantine regulations.

TABLE I.—*Summary of vessel water-supply supervision*

Inspections:		Certificates issued:	
First inspections—		Temporary—	
Passenger	5	Passenger	34
Freight	0	Freight	11
Reinspections—		Regular, favorable—	
Passenger	10	Passenger	16
Freight	0	Freight	0
		Regular, unfavorable	0

RAILROAD WATER-SUPPLY SUPERVISION

Inasmuch as the States in this district have well-organized bureaus for carrying on sanitary engineering work, it is not necessary for the engineer of this district to assist in the inspection of water supplies used by railroads engaged in interstate traffic. Some work has been done, however, in preparing for several of the States an office routine for this certification work. The scheme employed by the service has been used as a model and, on a small scale, has been introduced into two States during the past year. The results of the introduction of this method have been encouraging, since it has facilitated the certification work of these States.

MISCELLANEOUS

The engineer in this district served as secretary-treasurer of the Conference of State Sanitary Engineers and has been active in carrying on the work of this organization. The Transactions of the 1924 Conference were published and work started in preparing the Transactions of the 1925 Conference.

Under the supervision of the district engineer the Public Health Engineering Abstracts were issued during the entire year. The following table gives pertinent data relative to these abstracts:

	Fiscal year ended—				
	June 30, 1921	June 30, 1922	June 30, 1923	June 30, 1924	June 30, 1925
Publications available	69	243	260	169	132
Abstractors	7	28	42	72	81
Weekly issues	27	52	53	51	50
Articles abstracted	231	611	743	976	618
Person—issues	2, 505	12, 142	17, 383	22, 672	23, 486
Mailing list	171	283	405	497	490

In addition to the Public Health Engineering Abstracts, 956 copies of 25 different technical publications were obtained and distributed among the sanitary engineers of the States and of the Public Health Service.

DISTRICT 3.—OHIO, INDIANA, ILLINOIS, WISCONSIN, MICHIGAN, IOWA, MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA, AND NEBRASKA

Associate Sanitary Engineer Joel I. Connolly continued in charge of district 3 during the year. Activities of this district have been principally the supervision and control over the quality of water provided for drinking and culinary purposes on vessels and trains engaged in interstate traffic.

VESSEL WATER-SUPPLY SUPERVISION

The vessels which have come under the supervison of this district have been those of American registry on the Great Lakes and the St. Lawrence River, regardless of whether they were confined to the States listed above or not. Thus Great Lakes vessels operating in Pennsylvania and New York State were supervised. On the other hand, vessels in this district operating upon the Ohio River and its tributaries were supervised by the district engineer of district No. 4.

The cooperation between the United States and the Dominion of Canada inaugurated a year ago has been considerably extended during the past year and has proved to be very helpful. On one occasion the sanitary engineer of the Canadian Health Department came to Chicago for a conference regarding cooperative measures in this work, and on another occasion the district engineer went to Toronto, Canada, where a number of Canadian vessels, many of which operate between Canadian and American ports, were inspected with the Canadian sanitary engineer for the purpose of securing more uniformity in the provision of the necessary means for providing pure drinking water. In addition Canadian vessels have been inspected when in American ports by the district engineer or his sanitary inspector and American vessels have been similarly inspected while in Canadian ports by the Canadian sanitary engineer and the information thus obtained has been forwarded to the country to which the vessels belong.

A very valuable bit of international cooperation has been inaugurated at Sault Ste. Marie, Mich., where the United States sanitary inspector collects samples from both American and Canadian vessels as they pass through the locks where he makes his inspections. These samples are taken by him across the river to the branch laboratory of the provincial health department at Sault Ste. Marie, Ontario, where they are examined, reports being forwarded to both the American and Canadian authorities.

Inasmuch as the collection and examination of samples at the larger cities on the Great Lakes is confined mostly to passenger-carrying vessels, this arrangement at the Soo has filled a long-felt need in making it possible for us to secure similar information for the freighters. This cooperative arrangement is particularly valuable in this case, since it assists greatly in determining which vessels are not supplying water of uniformly good quality and thereby indicating which vessels require the greatest amount of attention in securing improvements.

Reciprocal interchange of typhoid fever case reports and information regarding routes and sources of water supplies for vessels plying between American and Canadian ports is now well established and is proving mutually helpful.

Owing to limited personnel, it has not yet been found possible to make inspections of all Great Lakes vessels of American registry. However, the vessels of the greatest importance from a public health standpoint namely, the passenger vessels, have been quite thoroughly inspected. A good many freighters escape inspection each year because of the physical impossibility of reaching them all with our limited personnel during the operating season. It has been found, however, that the careful checking up of conditions aboard those vessels which have been inspected is causing the owners of other vessels, which have perhaps hitherto escaped inspection, to make the necessary improvements without waiting for an inspection to reveal the defects. This is particularly true of those belonging to the Lake Carriers' Association, which association, through its shore captains' committee, has given valuable cooperation in securing uniformity of improvements.

Conferences have been held with representatives of companies building or contemplating the building of new vessels for the purpose of making sure that the water systems will be satisfactorily designed and installed. On passenger vessels in particular an effort has been made to secure the installation of apparatus capable of supplying enough pure water for ablutionary as well as for drinking and culinary purposes, thus avoiding the necessity of placarding and eliminating to a large extent the danger arising from the possibility of the use of impure water provided for ablutionary purposes alone, by children unable to read the signs. On some recently built vessels this has required the treating aboard the vessel of some 200,000 to 300,000 gallons per day, an amount wholly beyond the ability of some types of equipment to supply.

Cooperation with local authorities has not been confined to the collection and examination of samples by the local authorities, since the personnel of this district has been instrumental during the past year in seeing that local ordinances or regulations, such as the provision of tanks aboard vessels for the collection and retention of sewage while in the proximity of harbors or bathing beaches, and the locking of toilets when passing water-intake cribs, etc., are properly observed. One development of the year has been the determination of a recommended course for vessels entering or leaving the Chicago River which, if adhered to by the vessels, will reduce the danger of contamination of the water in the immediate vicinity of the intake cribs to a minimum. Copies of a map showing this course have been distributed to companies operating passenger vessels to Chicago.

Another development of the past year of interest and significance is the growing practice of having vessels come to Great Lakes ports directly from overseas. A number of Norwegian vessels have brought cargoes directly from Europe to Great Lakes ports during both the operating season of 1924 and that of 1925, and these vessels, having discharged their foreign cargoes, are remaining in Great Lakes waters to engage in the Great Lakes trade. These vessels are mostly small vessels of relatively small draft since the small size of the locks in the St. Lawrence River canals prevents the entry of large vessels as yet.

Other vessels have engaged in trade directly between Great Lakes and foreign ports, such as between Detroit and Belgian and Dutch ports of Europe and Argentine ports of South America. A conference was held with the Swedish consul who was desirous of getting information of our requirements with a view to the establishment next year of a regular line of steamers from Sweden to Great Lakes ports. At this conference the danger arising from the entry into ports on fresh water, such as the Great Lakes, of ocean-going vessels was pointed out. This danger arises from the fact that these vessels are usually equipped with tanks for carrying water from shore, since the sea water is unfit for drinking. When these vessels get into the Great Lakes it has been found to be a practically universal practice to fill such tanks with raw lake water pumped from directly overboard, as it appeared to them that since the water in the Great Lakes was fresh it was satisfactory.

When inspections of these foreign ocean-going vessels which are temporarily engaged in Great Lakes trade are made the danger of taking water from directly overboard is pointed out, and the captains of these vessels are advised that, if thay are to continue to operate upon the Great Lakes, they must comply with the American or Canadian regulations governing the water for drinking and culinary purposes and secure a certificate as the other Great Lakes vessels are doing. The option as to whether they shall secure an American or Canadian certificate is left with them, since the regulations of the two countries upon this subject are very nearly the same, and it is felt that the water supply will be protected in either case. Thus far the owners or agents of these vessels have professed ignorance of the regulations when the conditions aboard the vessels were found to be in violation of them and have appeared ready and willing to comply with the provisions as soon as they are acquainted with them.

During the year just closed there were seven cases of typhoid fever among Great Lakes seamen reported by the marine hospitals. This is a material reduction from last year and is a smaller number than any hitherto.

The following table summarizes the typhoid fever cases among Great Lakes seamen hospitalized at United States marine hospitals since 1915:

Navigation season	Cases	Navigation season	Cases
1915	60	1921	13
1916	70	1922	17
1917	49	1923	25
1918	39	1924	21
1919	24	1925	7
1920	20		

The practice of painting drinking-water systems blue aboard vessels has been adhered to and extended and has proved very helpful, not only in the annual inspection of the drinking-water system by representatives of this district but also by rendering less likely the making of accidental cross connections when making repairs or alterations aboard the vessels.

On a number of vessels a disposition has been evidenced to change from the ultra-violet ray system of sterilizing water to the use of a solution of sodium hypochlorite. This change seems to be occasioned by the high cost of replacing broken lamps and tubes of fused quartz in the ultra-violate ray machine, as compared with the relative cheapness of the apparatus for applying sodium hypochlorite. The use of sodium hypochlorite has the decided disadvantage, however, that it must be carefully controlled to insure adequate disinfection of the water and to avoid the production of disagreeable tastes or odors, and as yet no apparatus has been devised which is capable of automatically safeguarding this feature. It is, therefore, necessary to educate the personnel charged with the control of this apparatus in the proper testing for residual chlorine and to see that these tests are conscientiously and regularly made.

It has been found that the varying conditions of light, especially that of artificial light, has been detrimental to the proper making of these tests and there has recently been instituted a movement to provide uniform sources of illumination for making the colorimetric determination of residual chlorine. The sources of illumination consists of a box having a ground glass top and containing a blue-white nitrogen incandescent light. By holding the tube and the standards over this box a uniform light, closely approaching that of daylight, is made available for the test.

TABLE I.—*Summary of vessel water-supply supervision*

Inspections:	
First inspections—	
Passenger	43
Freight	113
Reinspections—	
Passenger	53
Freight	129
Docks	26
Certificates prepared:	
Temporary—	
Passenger	41
Freight	379
Certificates prepared—Continued	
Regular, favorable—	
Passenger	37
Freight	82
Regular, unfavorable	0
Major conferences:	
With shipping officials	34
With others	18
Water analyses made at—	
City laboratories	959
Canadian laboratories	271

RAILROAD WATER-SUPPLY SUPERVISION

The work of certification of railroad water supplies in this district has been commendably performed by all the States having the necessary personnel for making the field investigations required in this work. Unfortunately, however, two States—namely, Nebraska and North Dakota—have been without the services of a sanitary engineer or other trained personnel qualified to do this kind of work. Prior to the transfer of these States to this district, however, some of the field work within the States was done by the district engineer of interstate sanitary district No. 4.

The personnel of this district has been engaged in several phases of railroad water-supplies supervision other than certification; namely the design of coolers to secure satisfactory operation and complete separation of ice and water, and the sanitation of coach yards and terminals, protection of hose and other equipment used for watering trains, and the securing and instructing of the right kind of personnel for this duty. Inspections of railroad coach yards and terminals were made in Chicago, Indianapolis, Cincinnati, Cleveland, Columbus, and Detroit.

A conference was held with the manufacturers of cooler equipment regarding design of coolers. The Public Health Service was represented at two meetings of the joint committee on drinking-water supplies of the medical and surgical section of the American Railway Association and the water-supply section of the American Railway Engineering Association. At these two meetings a report was drawn up for presentation to the associations represented on this joint committee for their consideration and adoption as present-day standard American practice. The district engineer also represented the service at the annual meeting of the American Railway Engineering Association, discussing the report of the water-supply section, at the invitation of its chairman.

DISTRICT 4—ALABAMA, MISSISSIPPI, MISSOURI, LOUISIANA, OKLAHOMA, ARKANSAS, KANSAS, KENTUCKY, TENNESSEE, AND TEXAS

Assistant Sanitary Engineer A. L. Dopmeyer continued in charge of the district.

The principal activities of this district were as follows: (1) Supervision over water supplies used for drinking and culinary purposes on vessels, together with investigations as to general sanitary conditions on vessels, and investigations of reported cases of typhoid fever occurring in persons employed on or traveling on vessels. (2) Supervision over water supplies used for drinking and culinary purposes on railroad trains, including the inspection of equipment and handling of equipment used in relation thereto on cars and in coach yards. (3) Cooperation with State health departments. (4) Special investigations, lectures, reports, etc.

VESSEL WATER SUPPLY SUPERVISION

Before vessels operating on the Gulf of Mexico were assigned to this district for supervision, 525 vessel companies operating vessels on the Mississippi River and its tributaries were circularized for information concerning the water-supply systems on their vessels; and since that time, 92 companies operating vessels on the Gulf of Mexico have been circularized, making a total of 617 companies with which correspondence has been carried on. Some of these were found not to be operating vessels falling within the scope of the Interstate Quarantine Regulations at the time and were therefore placed on an inactive status. Companies operating vessels with trips of short duration, such as ferries, were persuaded to discontinue the practice of supplying water on their vessels. After making these deductions, it was still found to be impossible to make the necessary inspections and certifications on the remaining vessels. A list was therefore made of those vessels considered to be the most important from a public-health standpoint. This active list now includes 180 vessel companies, and a total of 367 vessels. These figures include only carriers actively engaged in interstate traffic and are exclusive of vessels owned by the United States Government.

Since the engineering personnel connected with this district was reduced from two to one from the preceding year, it was necessary, in order to prevent the work on vessel water supplies from lapsing, to carry it on in a somewhat different manner. It was no longer possible to carry on the personal inspections of vessel water-supply systems as extensively as before and to maintain the close personal contact with shipping officials, desirable for best results in this work. Instead, energies were directed to interesting State, city, and other health officials in making collections and analyses of samples of water from vessels, and in reporting sickness in persons employed on or traveling on vessels, in such a manner that the unsatisfactory condition of a water supply on any of the more important passenger vessels would be reported immediately, and steps could be taken to have the condition investigated and corrected. In the case of excursion boats operating out of one port, where there was a local as well as an interstate health problem involved, the city health officer usually notified the company direct when samples showed an unsatisfactory analysis, and sent a copy of his report to the district engineer. It has been found that the policy of obtaining water samples at frequent and regular intervals from vessels has produced a twofold result, not only providing the means for keeping in close contact with the manager of the vessel, but serving to make him vigilant concerning the quality of the water provided on vessels of his company. A total of 1,169 reports of analyses of samples of water from vessels were received during the year from the following nine agencies: (1) city health department, Wheeling, W. Va.; (2) city health department, Cincinnati, Ohio; (3) city health department, Louisville, Ky.; (4) United States Public Health Service relief station, Paducah, Ky. (samples analyzed at State laboratory, Lexington, Ky.); (5) city health department, St. Louis, Mo.; (6) city health department, Memphis, Tenn.; (7) United States Public Health Service relief station, Natchez, Miss. (samples analyzed at State laboratory, Jackson, Miss.); (8) United States Public Health Service relief station, Vicksburg, Miss. (samples analyzed at State laboratory, Jackson, Miss.); (9) State health department, New Orleans, La. (samples analyzed at joint city and State laboratory).

Since March 26, 1925, when supervision of water supplies on vessels operating on the Gulf of Mexico was assigned to this district, arrangements have been completed with the State Board of Health of Florida to analyze samples of water from vessels at the State branch laboratory in Tampa, the city health officer of Tampa having offered the services of one of the city sanitary inspectors to collect the samples and deliver them to the laboratory. The same arrangement has been completed with the State of Alabama and the city of Mobile, where a branch laboratory of the State is located. A similar plan is now under way with the State of Texas and the city of Galveston, but the procedure has as yet not been agreed upon. It is believed that with the analytical checks on the water supplies of vessels operating on the Gulf of Mexico at the important shipping points, namely, Tampa, Fla., Mobile, Ala., New Orleans, La., and

Galveston, Tex., a control will be maintained over the water supplies on these vessels equally as effective as that on river vessels.

During the year 25 typhoid-fever case reports for seamen were received. This large number may be attributed in part to advanced efforts to obtain as much data of this sort as possible by circularizing the hospitals and relief stations and by personal visits to them whenever the opportunity afforded.

It is of interest to note that of the 25 typhoid-fever case reports received, 12 were for persons employed on vessels owned by the United States Government, over which vessels we have no supervision. However, a close cooperation is being maintained with Federal officials charged with the operation of vessels, offering advice and assistance concerning water supplies whenever requested. Conferences were held at various times during the year with engineers of the War Department stationed at points on the Mississippi River and its tributaries, with officials of the Lighthouse Service, the Mississippi Warrior Service, and the Goltra Barge Line, which operates Government-owned vessels under lease. There has been a decided improvement in the quality of water supplied on the Government-owned vessels during the year, which is no doubt due in large measure to the typhoid-fever cases called to the attention of the officials in charge, and to the replacement of unsuitable water-supply systems with more satisfactory ones on many vessels.

The apparent better reporting of typhoid-fever cases, coupled with the more comprehensive analytical control, has no doubt been the prime factor responsible for maintaining satisfactory conditions and for obtaining desired improvements in the water-supply systems on vessels.

Investigations into conditions on vessels from which typhoid cases were reported were carried out as completely and as soon after the report was received as was possible, serving to expose many insanitary conditions which might have gone unnoticed until the occasion presented itself for an inspection of the vessel. In one particular instance, an investigation into the conditions under which a certain employee on a vessel received his typhoid infection revealed that, about the same time, there was a diarrheal outbreak among nine others of the crew of the vessel, and that an emergency supply of raw river water was being used at the time because the regular supply taken from a certified source ashore was exhausted.

It is possible now to obtain water from the city supply at practically every large port on the Mississippi River and its tributaries in a sanitary manner through a pipe line and a short section of hose. A number of pipe-line extensions from city mains have been made during the year, however, in most cases at smaller ports and by private companies, for their own use. Inspections were made, whenever the occasion presented itself along with other work, of the sanitary conditions at docks and levees, particularly in regard to the condition of hydrants, filling hose, and connections.

On account of the unsatisfactory operation of some makes of purification apparatus using river water as a source of supply, many vessel companies are now again using water from certified sources ashore and storing it in tanks. The purification apparatus which meets with the most favor, particularly on the small towboats, is the water still. On some of the larger excursion boats, however, the use of the ozone machine seems to be more economical for producing large quantities of water. Ninety-four of the vessels listed in the active file of common carriers are equipped with satisfactory purification apparatus, two of these being ozone machines and 92 stills. The above number does not include the condenser or any other apparatus which does not warrant favorable certification.

When commercial water stills of unsatisfactory design and construction were found on vessels the manufacturers were communicated with and advised as to the undesirable features of their product for use on river vessels. The companies in most cases were desirous of making the necessary changes, and as a result the shipping official now has little difficulty in choosing an apparatus of the design and capacity satisfactory for his needs.

The matter of the proper design of a water-supply system on new vessels has been taken up in several instances with the designers and builders in order to prevent costly modification after construction.

The Steamboat-Inspection Service has rendered valuable assistance by reporting water-supply conditions on vessels at the time of inspection.

By request of the editor of the Waterways Journal, a weekly publication issued in the interest of inland waterway transportation, a series of articles were prepared and published in the Journal at various times, discussing certain features in connection with water supplies on vessels.

Table I.—*Summary of vessel water supply supervision*

Inspections:		Major conferences:	
First inspections	21	With shipping officials	35
Reinspections	127	Other	15
Certificates issued:		Water analyses made:	
Temporary	169	State laboratories	36
Regular, favorable	45	City laboratories	1,133
Regular, unfavorable	0		

RAILROAD WATER SUPPLY SUPERVISION

Investigations of the facilities provided at terminals and coach yards for watering trains and of the sanitary conditions at such places have been made in the following cities: St. Paul, Minn.; Minneapolis, Minn.; Omaha, Nebr.; Kansas City, Mo.; St. Louis, Mo.; Nashville, Tenn.; Montgomery, Ala.; Texarkana, Ark.; New Orleans, La.; and Galveston, Tex. Particular interest has been taken in the apparatus and methods used in filling drinking-water coolers and water tanks on railroad cars. Investigations have also been made into the construction of water coolers, particularly coolers which were formerly of the single-compartment type but have been reconstructed with a view to separating the ice and water. In a number of instances where coolers were apparently of unsatisfactory design to serve the purpose for which they were intended, the matter has been taken up for correction through the proper channels.

COOPERATION WITH STATES

Active cooperation has been maintained with all of the States in the district. Although all of the requests for assistance could not be complied with, States in which it was believed to be most needed were given active assistance. In the State of Nebraska, which has no sanitary engineering division, surveys were made of six water supplies for certification to interstate carriers. Although no full-time sanitary engineer has as yet been employed, a fund was appropriated at the last session of the legislature which may be used to pay for the services of a consulting engineer whenever sanitary engineering advice is needed.

At the request of the State health officer of North Dakota and for his use in an effort to obtain added funds for sanitary engineering work, a report was prepared giving a history and record of sanitary engineering work in that State, together with a summary of present needs and arguments in favor of the employment of a full-time sanitary engineer by the State.

In Arkansas surveys were made of five water supplies used by interstate carriers, and in Texas surveys were made of three such water supplies.

Conferences were held with officials of the State boards of health of all States in the district during the year except Oklahoma, to which State time and travel funds did not permit a personal visit. In some of the States added to the district near the close of the year and which had been included in no district for some time, the State health officer and State sanitary engineer were personally conferred with and the present bureau policy concerning the certification of interstate-carrier water supplies explained, and a special effort was made to clear up with them matters affecting the service concerning which there seemed to be some doubt.

DISTRICT 5.—ARIZONA, CALIFORNIA, COLORADO, NEW MEXICO, NEVADA, AND UTAH

DISTRICT 6.—IDAHO, MONTANA, OREGON, WASHINGTON, AND WYOMING

Sanitary Engineer H. B. Hommon, continued in charge of the two districts and the supervision over sanitation in the national parks, assisted by Associate Sanitary Engineer Isador W. Mendelsohn and Assistant Sanitary Engineer L. D. Mars. The work carried out during the year was divided as follows: (1) Examination of water-supply systems on vessels engaged in interstate traffic; (2) cooperation with the State departments of health in the two districts in the examination of water supplies used on trains operated in interstate traffic and in the investigation of special problems of sanitation; (3) cooperation with the National Park Service in improving sanitation in the national parks; (4) special investigations and miscellaneous activities.

VESSEL WATER-SUPPLY SUPERVISION

The inspection of vessel water-supply systems was carried out during about eight months of the year. There are 400 vessels divided among 114 companies registered in Pacific coast ports that come under the jurisdiction of the Interstate Quarantine Regulations, and these vessels are scattered along a coast line of about 1,400 miles. With the limited personnel and the wide expanse of territory to be covered, it has been impossible to cover a large per cent of the total number of vessels of the west coast. It has been found possible, however, to cover all the large passenger and freight-carrying vessels and ferry boats, and it is estimated that 90 per cent of the people carried on the vessels engaged in interstate traffic in districts 5 and 6, receive water from vessels with approved water-supply systems.

TABLE I.—*Summary of vessel water supply supervision*

Inspections:	
First inspections—	
Passenger	23
Freight	13
Reinspections—	
Passenger	84
Freight	26
Certificates issued:	
Temporary—	
Passenger	0
Freight	0
Regular, favorable—	
Passenger	53
Freight	24
Regular, unfavorable	0

Major conferences:	
With shipping officials	4
Others	0
Water analyses made at:	
U. S. Public Health Service laboratories	0
At other laboratories	0
Typhoid fever cases:	
Reported by marine hospital	[1] 5
Investigation made	2

COOPERATION WITH STATES

The work carried out during the year consisted of cooperation with the States having no sanitary engineering divisions or limited appropriations for investigation of water supplies used on trains engaged in interstate traffic. In Wyoming, surveys were made and reports prepared covering investigation of 15 water supplies. In Colorado, 6 surveys were made of water supplies, and surveys of sanitary conditions were made in two cities. Investigation of 27 water supplies in Nevada were carried out; 20 surveys of train watering facilities, and sanitary surveys of two cities were made. In Idaho, 12 water supplies were investigated. In California, 2 surveys were made of supplies used by trains engaged in interstate traffic; public water supplies of 4 cities were inspected; sanitary surveys were made of 4 cities; and surveys were made of train-watering facilities at 9 places. In Arizona, 4 public water supplies and 8 railroad supplies were investigated, and the methods of watering coolers were inspected at 7 places. Sewage-disposal plants were examined at 4 cities, garbage incinerators at one, and automobile camps at another. Coach yards inspected included 6 in San Francisco and other adjoining bay cities, 4 in Los Angeles, 2 in San Diego, and 5 in Portland.

SANITATION AND MEDICAL ASSISTANCE IN THE NATIONAL PARKS

The assistance rendered the National Park Service, at the request of the Secretary of the Interior, in maintaining proper sanitary conditions in the national parks, was continued during the year on a larger scale than in previous years. Associate Sanitary Engineer Isador W. Mendelsohn was stationed in Yellowstone from May 8 to September 1, 1924, looking after all matters pertaining to sanitation, and from September 3 to October 4 he was in Glacier National Park supervising the construction of a sewerage system and disposal plant for the park headquarters at Belton, Mont. Assistant Sanitary Engineer L. D. Mars spent about four months preparing detailed plans for garbage incinerator for use in parks, trash burner for automobile camps, manure incinerator, and sewage disposal plant for the Grand Canyon.

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[1] Three cases on same ship, 1 case on private yacht.

Acting Asst. Surg. J. Meek Wolfe was on duty in Yellowstone Park up to March 1, when he was superseded by Acting Assistant Surgeon Windsor. The activities carried out during the year in the various parks were as follows:

Yellowstone.—A complete sewerage system and treatment plant, including sterilization equipment, was installed at the Canyon Automobile Camp, and at the lodge at the eastern entrance a sewerage system and disposal plant, including settling tank and subsurface disposal system, were constructed. Sewerage systems and disposal plants for Camp Roosevelt, West Thumb Automobile Camp, and the transportation headquarters at the Gardiner entrance were designed. At all the junctions in the parks where sewer systems have been installed or designed settling tanks are used and the effluents are sterilized before they are discharged into streams or lakes. Where soil conditions are favorable and the volume of sewage comparatively small, subsurface disposal trenches of special design are used. At the close of the fiscal year there were five treatment plants in the park where complete sterilization of the sewage effluents was carried out under constant supervision. Through the courtesy of the secretary of the State Board of Health of Montana, bacteriological analyses of all sewage-treatment plants are made weekly without cost of the Government, except express charges.

A complete survey was made of all the water supplies in the park, and where there was any question as to the purity of the water, samples were sent to the Montana State Board of Health for analysis. Investigations were made and estimates submitted for new water supplies for the Upper Basin and Canyon Junction, for the fish hatchery at the lake, for the swimming pool at the Upper Basin, and for improving the water supply at Mammoth Hot Springs. An entirely new and modern spring was constructed at Apollinaris Spring, in conjunction with the landscape engineer of the park service, to replace the insanitary, vitrified, standpipe that had existed at this very important place for many years.

The plans outlined last year for taking care of the garbage throughout the park were carried out, and conditions this season are much improved. The large fields of tin cans and rubbish that had accumulated from previous years have been cleared and the material buried. The garbage is now kept separate and buried daily, after the bears have worked it over, and the cans and other rubbish are hauled to remote places and dumped in ravines.

The mosquito-control work carried out during the year consisted of drainage in the fall and oiling and drainage in the spring. Adequate funds have not yet been made available for the necessary drainage work required at the nine junctions, but practical results have been obtained, and the mosquito nuisance is much less serious than it was a few years ago.

The general inspection of all places handling, storing, selling, and serving food and drink, and inspection of dairies and barber shops were made by the acting assistant surgeon on duty in the park.

Yosemite.—The work carried out in Yosemite during the year included the following activities: (1) Inspection of the sanitary conditions of all places handling, storing, and serving foods and soft drinks; (2) cooperating with the civil engineer of the park in the operation of the sewage-disposal plant, with particular reference to sterilizing equipment; (3) bacteriological examination of the water and milk supplies and water flowing in the Merced River above and below the sewage-treatment plant; (4) the design and construction of a garbage incinerator and can-crushing machine.

One unit of the incinerator was completed early in April, and test runs indicated that it would give satisfactory results. Based upon the results obtained, the superintendent ordered two more units constructed. One unit will burn the garbage during the winter, two during the early and late parts of the travel season, and the three will be required for the peak season. Tin cans and other noncombustible rubbish are separated from the garbage. One unit of the incinerator will consume 50 cans of wet garbage in 14 hours and requires about one-fourth cord of wood. The can-crushing machine reduces the actual volume of the space occupied by cans by about 95 per cent, and it is very inexpensive to operate. Hot water, obtained from pipes located inside the incinerator will be used for washing the garbage cans as soon as they are emptied. If the equipment now installed proves successful in continuous operation, the combination of burning garbage, mashing waste cans and producing hot water for washing garbage cans will be carried out in every park. In all other parks one unit will take care of the garbage from the places where garbage is produced.

Grand Canyon.—The most important work carried out at the canyon consisted of the design of a sewerage system and treatment plant to take care of all the sewage produced at the South Rim. The sewer system consists of about 5 miles of vitrified and iron pipe for domestic sewage and 1 mile of vitrified pipe for laundry wastes. The treatment plant, which must produce an effluent that can be used for boiler purposes, for irrigation, and for flushing toilets located in comfort stations outside of hotels and other living quarters, includes presettling tank, activated sludge plant, final settling tank, gravity sand filters, and sterilizing equipment. The sterilized effluent is to be stored in a 50,000 gallon elevated tank, and the distributing pipes will be of cast iron and painted a different color from any other galvanized iron pipe used at the South Rim.

The other activities in the park included the design of chemical toilets for use at Indian Gardens, where no other type could be used; general inspection of hotels and other places handling and selling food products; design of incinerator for burning manure; and laboratory tests for treating laundry wastes so they can be used for irrigation and for flushing toilets.

Sequoia.—The sewerage system and disposal plant designed the previous year were constructed and placed in operation this spring, and the operation is satisfactory. A modified design of the incinerator constructed in Yosemite this spring was built in Sequoia last fall. It is reported that satisfactory results are being obtained.

General inspections were made of all food-handling places in the park and the water-supply system installed last year was carefully inspected.

General Grant.—General inspections in the park were made, and the water-supply system and sewerage system and disposal plant which were constructed last year were carefully examined. Both were found to be in excellent condition.

Glacier National Park.—The usual general inspections were made throughout the park, and a sewerage system and disposal plant were designed for the Government headquarters at Belton. The construction was under the supervision of a Public Health Service sanitary engineer.

Rainier.—General inspection similar to those reported for the other parks were made and estimates given for a five-year construction program for sanitary work. Estimates were also given for costs of installing new water supply for Longmire Automobile Camp and methods of sewage disposal were recommended for the camp.

Crater Lake.—Plans were submitted to the superintendent of the park for improving and increasing the water supply at the rim of the lake and data were furnished regarding the construction of the sewerage system and disposal plant that were recommended last year.

Rocky Mountain.—A complete survey was made of this park and reports submitted covering general inspections of camp grounds, hotels, and other places handling and selling food products, new water supply for new Government industrial units, and disposal of sewage and garbage from various places in the park.

Mesa Verde.—This park was visited for the first time and a complete report submitted covering sanitary conditions and recommendations for increasing water supply.

Zion.—During the year a complete sewerage system and disposal plant, including sterilizing equipment, were designed and constructed and placed in operation. The reports received show that the sewage discharged is sterile and the plant is operating in a very satisfactory manner. A sewerage system and disposal plant were also designed for the automobile camp in the park. General inspections were made in the park.

Hot Springs.—A complete set of specifications were made for the construction of a sanitary sewer to carry off the bath water and sewage from all the bath houses, and assistance was rendered in regard to the design of the sewer.

MISCELLANEOUS ACTIVITIES

The following miscellaneous activities were carried out during the year by the sanitary engineers attached to the two districts: (1) Six lectures were delivered to the senior class of Stanford Medical University on sewage and garbage disposal and sanitary surveys; (2) three papers were prepared, one of which was read before the California section of the American Water Works Association, and two were published in the Public Health Reports; (3) service requested by the California Railroad Commission in connection with the hearings regarding the application of the East Bay Water Co. for permission to spend $10,000,000 for increasing water supply was given; (4) investigation of well-water supply at United States Veterans' Hospital, Livermore, Calif.; (5) preparation of plans and estimates for power plant for producing electric current for operating activated sludge plant at Grand Canyon; and (6) investigation and report on nonpoisonous chemicals for killing weeds on sewage sand filters at Yosemite National Park.

SANITARY INSPECTIONS OF SHELLFISH AREAS

About December 5, 1924, an excessive prevalence of typhoid fever in Chicago, Ill., was recognized by the health department of that city. A few days later it was noted that the reports of cases indicated an excessive prevalence also in New York City, Washington, D. C., and several other cities.

The outbreaks in the different cities presented a number of similar general features. Persons of wealth or associated with wealth seemed especially affected. Many persons of prominence were stricken. Such outbreaks, naturally, aroused widespread interest and were given extensive newspaper publicity.

From the studies made by the city health departments of Chicago and New York at the beginning of the period of excess reporting rate, it became apparent that a large majority of the cases in each of those cities was in persons who within the three or four weeks preceding onset of their illness had eaten raw oysters; and that besides oysters no common factor likely to be operative in the spread of typhoid infection was in evidence.

On December 9, the health commissioner of Chicago issued, through the local press and by radio, a warning to the people of that city to refrain from eating raw oysters. On December 17, the health commissioner of New York City placed an embargo upon the oyster beds in lower New York Bay, including Raritan Bay, Princess Bay, and Sandy Hook Bay, and in a letter dated December 19 recommended to the Surgeon General of the Public Health Service that steps be taken to prevent the shipment in interstate traffic of oysters dredged from those waters. On December 18, Surg. F. A. Carmelia was detailed to proceed to New York to inspect oyster beds under suspicion of being polluted.

The aroused popular apprehension about the safety of oysters for food caused a very marked reduction in the oyster trade, the reduction as estimated ranging from 25 to 75 per cent for different producing areas in general, and being almost 100 per cent for the lower New York Bay area. The financial loss to the oyster industry was large and the suffering resulting from deprivation of wages among the thousands of persons dependent upon this industry for work was serious. The popular apprehension affected not only the shellfish industry but, remarkably, also the scalefish industry. Accordingly, on January 5, 1925, Surg. L. L. Lumsden was detailed to assume general charge of a thorough and comprehensive epidemiological study of the whole situation.

On February 9, 1925, Surgeon Lumsden submitted a preliminary report which stated, among other facts, that the main factor in the spread of the infection causing the excessive prevalence of typhoid fever in New York City, Chicago, Ill., Washington, D. C., and several other cities in the United States, was beyond reasonable doubt shell oysters distributed by a producing company operating within the vicinity of West Sayville, N. Y.

Supplement No. 50 to the Public Health Reports contains the final report of the investigation by Surgeon Lumsden of the typhoid-fever epidemic caused by oyster-borne infection.

Because of the importance of the typhoid-fever situation to health officials and to the shellfish industry, a conference was held by the Surgeon General in Washington on February 19, 1925, to consider measures to insure the future safety from the standpoint of health of all shellfish. There were present State health officers of approximately 20 States, a number of city health officers, members of State conservation commissions, and representatives of the oyster industry; representatives of the Bureau of Chemistry of the Department of Agriculture; Bureau of Fisheries, Department of Commerce; and the Public Health Service.

Resolutions were adopted by the conference as a basis for permanent shellfish control, as follows:

1. The beds on which shellfish are grown must be determined, inspected, and controlled by some official State agency and the United States Public Health Service.
2. The plants in which shellfish are shucked or otherwise prepared or packed by the shipper must be inspected and controlled by some official State agency and the United States Public Health Service.
3. The freedom from typhoid bacilli of the workers who handle shellfish must be determined by some official governmental agency.
4. Failing to secure sufficiently high standards to protect the people as regards beds, floating and plumping practices, and methods of shucking or other methods of preparation, a satisfactory practical method of pasteurization or other heat treatment, or chemical or biological method which produces satisfactory results, must be installed and operated under proper governmental supervision.
5. There must be such governmental supervision and such trade organization as will make plain the source of shellfish and will prevent shellfish from one source being substituted for those from another source. This will be chiefly a problem of the individual State.
6. The methods of shipping must be supervised, inspected, controlled, and approved by the proper official Federal and interstate agency.
7. The methods of storing, displaying for sale, and dispensing must be determined, inspected, and controlled by the proper State or city agency.
8. The product must conform to an established bacterial standard and must meet Federal, State, and local laws and regulations relative to salinity, water content, food proportion, and conform to the pure food laws standards.

For the purpose of considering further the details involved in these resolutions and advising regarding ways and means for the carrying out of the provisions, an advisory committee on shellfish sanitation was appointed by the Surgeon General, consisting of the following members:

Chairman, Dr. W. H. Frost, United States Public Health Service.

Vice Chairman, Mr. W. H. Killian, president, Oyster Growers and Dealers Association of North America, Baltimore.

Honorary Secretary, Mr. Lewis L. Radcliffe, Bureau of Fisheries, Washington, D. C.

Mr. Howard W. Beach, F. Mansfield & Sons Co., New Haven, Conn.

Dr. H. B. Costill, State director of health, Trenton, N. J.

Mr. F. W. Darling, J. S. Darling & Son, Hampton Roads, Va.
Dr. Oscar Dowling, president, State board of health, New Orleans, La.
Mr. Swepson Earle, Maryland Conservation Commission, Baltimore.
Mr. J. N. Fowler, New Jersey Board of Shell Fisheries, Port Norris, N. J.
Dr. W. S. Frishbie, Bureau of Chemistry, Washington, D. C.
Dr. John S. Fulton, director, State board of health, Baltimore, Md.
Mr. Stephen DeM. Gage, State board of health, Providence, R. I.
Dr. Arthur T. McCormack, State health officer, Louisville, Ky.
Mr. Victor S. Michel, Oyster Dealers and Protective Association of Louisiana, New Orleans, La.
Dr. Stanley H. Osborn, State health commissioner, Hartford, Conn.
Dr. William H. Peters, city health commissioner, Cincinnati, Ohio.
Dr. Isaac D. Rawlings, president, State department of public health, Springfield, Ill.
Mr. William H. Raye, Oyster Growers and Dealers Association of North America, 427 Commercial Street, Boston, Mass.

The committee has been actively at work, and its report is expected to be submitted to the service early in the next fiscal year.

Owing to the widespread interest and concern in the shellfish situation and the urgent need of general sanitary supervision along the lines set forth in paragraph 13 of the Interstate Quarantine Regulations, a supplementary estimate of $57,600 was submitted to the Bureau of the Budget for shellfish sanitation. This estimate was approved by the Budget and passed by Congress with the provision that the funds should be available until June 30, 1926. A force of two medical officers, four sanitary engineers, four technical assistants in sanitary engineering, and one bacteriologist was detailed to the work.

Headquarters and a laboratory were established at Craney Island, Va., where all personnel was assembled for a short course of instruction in order that all work should be performed in a uniform manner. The work was divided into two general sections: (a) Field surveys of shellfish producing areas and methods of handling shellfish in interstate commerce; and (b) research upon problems arising in connection with sanitation in the shellfish industry. The first is to be carried on in cooperation with the various State and local authorities; the second, at the research laboratory at Craney Island.

As the work was not inaugurated until late in the fiscal year no conclusions or results were available at the close of the year.

RURAL HEALTH WORK

Cooperative demonstration projects in rural sanitation were carried out in the fiscal year ended June 30, 1925, in 79 counties, or districts comparable to counties, in 19 States, as follows:

Alabama	8	Mississippi	3
Arkansas	1	Missouri	9
California	3	Montana	2
Georgia	8	New Mexico	9
Illinois	1	North Carolina	3
Iowa	1	Oklahoma	3
Kansas	1	South Carolina	1
Kentucky	1	Virginia	12
Louisiana	3	West Virginia	9
Massachusetts	1		

The appropriation "For special studies of and demonstration work in rural sanitation," with which the cooperative rural health work of the service is conducted, was $74,300 for the fiscal year 1925. The expenditures totaled about $73,000. Of this amount, about

$5,500 was used for special studies and administrative expenses, and about $67,500 was expended through specific allotments for the support of the 79 field projects. Over nine-tenths of the total funds for the operation of the field projects was provided by agencies—mainly State, county, and municipal official bodies—cooperating with the service in the demonstration work.

The plan of work was similar to that followed in the several preceding fiscal years, and the results continued highly satisfactory. This demonstration work in rural sanitation is made a part of a general program of well-rounded whole-time county health service. The projects furnish demonstrations of efficient, economical, rural health service, and also provide, so far as their as yet limited number goes, a thoroughly economical and highly effective means for the prevention of the spread of infection through interstate and international traffic. If all or a large majority of our counties, in whole or in large part rural, were provided with local health departments of the efficiency of those in these demonstration projects, the Federal and the State health agencies through proper cooperation with such departments could meet their sanitary responsibilities at much less cost than is now possible.

Mosquito Control Along the Texas-Mexican Border

During the fiscal year ended June 30, 1925, anti-yellow-fever measures have been carried out as nearly as possible as planned and fully discussed in the annual reports for 1923 and 1924.

A considerable expansion of the work was undertaken early in the year reaching into those nonborder areas in which it was thought advisable to extend operations in an effort to obtain some measure of *Aedes aegypti* control. While it was not possible, always, to secure this control, the value of the work to communities and as an educational measure has been beyond dispute.

The nonborder area to which reference is made is within a few hours' travel of the border. It is almost entirely agricultural and numerous roads run through it in every direction, making it particularly easy of access. It is to be regretted that a gradual withdrawal from this area was found to be necessary during the latter part of the year, but this was imperative owing to the necessity for limiting personnel in order to meet the radical cut in the allotment for yellow-fever control work for the coming year. It might have been possible to have continued a certain amount of work in this area had hoped-for local aid from county and city authorities developed, but this was not forthcoming, and it was deemed best to concentrate efforts upon the actual border. This has gradually been accomplished, and during the coming year the work will be intensified as far as possible upon that part of the border extending from Laredo to Brownsville. This area will include these two cities and the communities along the Rio Grande River between them. It is believed that, while the nonborder area is important, the vital issue from an epidemiological standpoint is in actual border control—lowering the *Aedes aegypti* index to the safety point.

While, as stated, local cooperation has not always been forthcoming, especially when this cooperation necessitated financial considerations, it is gratifying to note that communities, as a rule, were anxious to have the work go on. This was especially noted in those communities where there was a demand for general mosquito control. It has been a matter for comment in previous annual reports that *Aedes aegypti* control alone, is extremely difficult in communities where there is not a demand for general control.

The methods employed in the work this year have not differed from those of previous years, the general plan being to cooperate with and instruct property owners in mosquito control. In communities where the service had cooperation and where local inspectors were appointed, weekly inspections were made. In other communities a service inspector made such routine inspections as were possible. In general it may be said that the period between inspections by service men depends upon the activity of the local community. In many communities the passage of the model mosquito ordinance has been of great help, but as far as possible the work has been carried on in an endeavor to avoid court procedures, such action being taken only when unavoidable.

During the year work was done in twenty counties. The number of premises inspected was 882,686. The inspection of water containers covered 152,668 water barrels, 91,876 cisterns (these include wells, tanks, etc.), and 724,359 other containers, making a total of 968,903 water containers inspected by service men. This does not include inspections made by local inspectors.

The personnel employed consisted of one sanitary engineer, one associate sanitary engineer, four general inspectors, and six sanitary inspectors furnishing their own automobile transportation. There were six part-pay inspectors, these being furnished by various communities in conjunction with the service.

No dengue fever has been reported in the area worked in this year. One case of yellow fever was reported from Houston in the person of an immigrant arriving in Houston by train October 1, 1924. This person left Merida, Yucatan, September 24, arriving in New Orleans September 28th, and is reported to have died in Houston, Tex., of yellow fever October 8th. Senior Surg G. M. Guiteras was ordered to Houston to assume charge for the service. He was assisted by Sanitary Engineer Tarbett, who, under Doctor Guiteras' direction, made a survey to determine the relative prevalence of *Aedes aegypti* in the district where the death occurred. This matter has been made the subject of a report elsewhere and is, therefore, not reported here.

In the accompanying tables (I and II) the tabulated outline of the work for the year is shown.

TABLE I.—*Yellow fever prevention, Texas-Mexican border, showing summary of work, fiscal year 1925*

	Total area	Border counties	Non-border counties
Counties worked in	20	7	13
Communities worked in	79	54	25
Communities inspected	1,364	1,070	294
Premises inspected	882,686	639,582	243,104
Barrels inspected	152,668	90,363	62,305
Cisterns inspected	91,876	41,766	50,110
Other containers inspected	724,359	334,196	390,163
Total containers inspected	968,903	466,325	502,578

TABLE II.—*Yellow fever prevention, Texas-Mexican border, showing comparison of conditions in 1923, 1924, and 1925*

	1923 (July)	1924 (June)	1925 (June)
Percentage of premises having water containers	39.50	31.10	28.60
Percentage of containers in which mosquito breeding was found	10.25	7.00	5.70
Percentage of containers actually producing mosquitoes	2.25	1.75	1.00
Percentage of premises upon which containers breeding mosquitoes were found	4.05	2.18	1.75
Percentage of premises upon which containers actually producing mosquitoes were found	.89	.55	.48

ACTIVITIES RECOMMENDED BY THE ADVISORY COMMITTEE ON THE EDUCATION OF SANITARIANS AND THE FUTURE PUBLIC HEALTH IN THE UNITED STATES

The following activities have been carried on in accordance with the recommendations made by the committee at a meeting July 24, 1924, and at meetings of previous years.

The recruiting of personnel.—For the purpose of arousing the interest of students and other young persons in public health work, a booklet entitled "Opportunities for a Life Career in the Field of Public Health" was issued during the year and distributed to various universities and health agencies. Additional copies were purchased and distributed by the American Public Health Association and the International Health Board. The booklet has been placed on sale by the Government Printing Office and it is expected that the demand for it will continue for some years.

In an effort to arrange lectures before university students on the same subject, considerable correspondence was carried on among universities and prospective speakers. Lectures were given at Mount Holyoke College, the Ohio State University Medical School, and the Western Reserve University Medical School. Other institutions indicated a desire for a lecture in the Fall of 1925.

The training of sanitarians for the future.—One member of the committee has sought to create an interest among medical-school students in public health work by arranging for their employment during the summer with State departments of health. About 50 medical students indicated their desire for summer work and some 35 or 40 State health officers expressed a willingness to employ them under various specified conditions.

Another member of the advisory committee delivered in March, 1925, an address arranged by the Public Health Service on the subject of "The Development of Public Health Education in the Medical School Curriculum" before the Association of Medical Colleges.

The training of sanitarians now employed.—For the purpose of encouraging the attendance at summer schools of sanitarians now employed, the service distributed several thousand mimeographed announcements. Public health summer schools were not as actively promoted by the Public Health Service in 1925 as during the previous year. Partially as a result of the earlier work of the service, however, there appears to have been an increase in 1925 of educational institutions offering summer courses in various public health subjects. The announcements of Columbia University and the University of Michigan included approximately 90 public health courses each, and there were about ten other institutions with three to approximately 30 courses each, in addition to 14 universities offering special courses for public health nurses and a large number of teachers' colleges conducting special courses for teachers in public health education. The above data do not include summer courses at 29 medical schools given for the benefit of physicians only.

An experiment of particular interest was conducted by Rutgers College with the cooperation of the New Jersey State Department of Health. Public health courses were given on Fridays and Saturdays of each week throughout the summer session in order that employees of health departments might attend without being absent from their work more than two days each week.

To the presidents of the universities having class A medical schools and to deans of schools not attached to universities there was mailed an individually typed letter together with a statement setting forth three types of training which may be offered by universities for the supplemental academic training of sanitarians now employed.

Survey of public health measures carried on by medical societies.—In correspondence with the American Medical Association, a survey was planned providing for the distribution of a questionnaire by the American Medical Association among medical societies and the distribution of another questionnaire by the Public Health Service among local and State departments of health, for the purpose of determining the amount of work now being carried on in the field of public health and preventive medicine by medical societies. By the end of the year both the association and the service had received a considerable amount of data which is to be presented in a single report.

SUPERVISION OF INTERSTATE TRAVEL OF DISEASED PERSONS

The supervision of the travel of diseased persons on common carriers in interstate traffic and the transportation of things from disease-infected localities, together with general sanitary conditions on the carriers has been continued as provided for under the Interstate Quarantine Regulations.

SANITARY INSPECTIONS OF GOVERNMENT BUILDINGS

Inspections of the sanitary conditions of Government buildings in the District of Columbia, excepting those of the War and Navy Departments, were made during the fiscal year in accordance with Executive order No. 1498, of March 15, 1912. Excellent cooperation was given by those responsible for the care of the buildings, although inadequate appropriations have prevented the carrying out of many recommendations for improvement.

During inspections all insanitary and unhygienic conditions, such as overcrowding, congestion, improper ventilation, insufficient lighting, poor water supply, lack of cleanliness, and unsatisfactory plumbing, were noted. Defects were pointed out during inspections, and a written report made after each inspection, addressed to the Secretary of the department under whose jurisdiction the building came, and a copy forwarded to the Secretary to the President.

Conference of the Surgeon General with State and Territorial Health Officers

In accordance with provisions in the act of July 1, 1902, the annual conference of the Public Health Service with State and Territorial health officers was held in Washington, D. C., on June 1 and 2, 1925. It was attended by delegates from 30 States and 2 Territories. A two-day program was carried out in which the following subjects were discussed:

1. A plan for the establishment of a morbidity area.
2. A State-wide program of milk control.
3. The routine reporting of county health work.
4. The occurrence of plague in the United States since the last annual conference and control measures taken.
5. The practicability and desirability of utilizing the services of advanced and selected medical students during the summer months in the field of public health.
6. Stream pollution as a public health matter.
7. Cooperative measures for the sanitation of shellfish areas and shucking houses.
8. Progress report of studies of administrative health practice.

In the afternoon of the second day the conference met at the Hygienic Laboratory, where demonstrations were given on the following subjects: The new scarlet fever preparations; narcotic drug addiction; considerations in smallpox control; tuleraemia.

DIVISION OF FOREIGN AND INSULAR QUARANTINE AND IMMIGRATION

In Charge of Asst. Surg. Gen. J. D. Long

Quarantine Transactions

During the fiscal year 1925, officers of the Public Health Service engaged in the administration of the United States quarantine laws inspected 19,731 vessels and 1,715,936 passengers and members of crews at the continental maritime stations. At insular stations 2,867 vessels and 369,701 passengers and members of crews were inspected. At foreign stations 7,212 vessels and 821,019 passengers and members of crews destined for ports of the United States were inspected. There were 6,607 vessels fumigated or disinfected at continental stations, 534 at insular stations, and 2,191 at foreign stations. At the border quarantine stations there were 49,694 travelers inspected, exclusive of the local interurban traffic.

General Prevalence of Quarantinable Diseases

Cholera.—Except in Asia the incidence of cholera appears to have diminished during the last, as compared with the previous, fiscal year. A considerable number of cases were reported from southern Asia, China, and Turkey, but other parts of the world where cholera commonly occurs appear to have been relatively free from this disease. This may be temporary. Late in June four cases of cholera were reported from the Philippine Islands. The preventive measures at ports of departure were sufficient to prevent the introduction of cholera into the United States.

Plague.—The prevalence of plague noted in previous annual reports continued throughout the past year. Although the number of reported cases was somewhat diminished in certain countries, this diminution was counterbalanced by the reappearance of the disease in localities where it had been absent for a number of years. No great division of the earth is entirely free from plague at this time.

In the United States human cases appeared in Los Angeles, Calif., and rodent cases in Oakland, Calif., and New Orleans, La. These occurrences are described more in detail elsewhere in this report.

Two vessels infected with plague arrived at quarantine in the United States. One of these vessels carried one case of human plague and six plague-infected rats, while the other vessel carried one rat infected with plague.

Smallpox.—This disease was more universally prevalent than during the previous fiscal year, cases having been reported from practically every country in the world.

An epidemic of smallpox at Vancouver, British Columbia, during the winter and spring months, made it necessary to require the vaccination of all unprotected persons leaving that city for the United States.

Typhus fever.—The decline in the incidence of this disease described in the report of 1924 continued during 1925. The disinfestation of passengers from the typhus-infected countries of northern Europe effectually prevented the introduction of this disease into the United States.

Yellow fever.—At no time in the history of this disease has its incidence been so low. During the year yellow fever has been reported from but three countries in the world, namely, the Gold Coast and Nigeria in Africa and Salvador in Central America.

Changes in Quarantine Procedure

Two amendments to the quarantine regulations were promulgated. Amendment No. 8, dated February 27, 1925, provided for the exemption of vessels operating exclusively between Canadian ports and ports in the United States from obtaining consular bills of health at Canadian ports, and from quarantine inspection upon arrival at ports in the United States. The removal of the requirement that vessels of this character obtain bills of health has greatly facilitated the dispatch of vessels between Canadian and United States ports, and was made possible through the cordial cooperation of the health authorities of the two countries.

Because of confusion in interpreting paragraph 101 of the quarantine regulations and in order to make its meaning clear, amendment No. 9 was promulgated under date of March 21, 1925. This amendment provides for the issuance of provisional pratique, under certain circumstances, to vessels from infected ports, no distinction among vessels from foreign, insular, and domestic ports, being made.

Plague.—The occurrence of plague in rats at New Orleans, La., Los Angeles, Calif., and Oakland, Calif., made it necessary to institute measures for the deratization of vessels proceeding from these ports to other ports in the United States as well as to foreign ports. Measures for enforcing rat guarding and fending off of vessels were also inaugurated.

Yellow fever.—In view of the fact that no authenticated cases of yellow fever had been reported for a number of months prior to the beginning of the close quarantine season of 1924 from any of the seaports of Mexico, Central America, South America, or the West Indies, those ports were considered as free from that disease. Since yellow fever has been endemic for so many years in these countries, as a precautionary measure, vessels from ports on the eastern coast of Mexico and the eastern coast of South America, north of Victoria, Brazil, which had not lain at wharves or anchorages free from the presence of *Aedes egypti* mosquitoes at the port of departure were, in the discretion of the quarantine officer, subject to fumigation for the destruction of mosquitoes upon arrival at a port in the United States. Since the yellow fever situation continued favorable, the procedure successfully followed during the close quarantine season of 1924 was continued during the summer of 1925. Passengers and trains at border stations are not detained unless they are known or suspected to be from infected territory although, as a precautionary measure, cars found to contain *Aedes egypti* mosquitoes are fumigated.

This is the first time in many years that it has been practicable to permit unrestricted intercourse between ports in the southern part of the United States and ports in the countries above-mentioned during the close quarantine season without great danger of importing yellow fever into the United States.

Quarantine officers, located in the regions where the *Aedes aegypti* mosquitoes may exist, are required to submit semi-monthly reports of the presence or absence of these mosquitoes, together with the state of the weather, and other conditions which may affect their propagation. These reports are tabulated in the Bureau so that the infectability of a given place with yellow fever may be ascertained with a considerable degree of accuracy.

INTERNATIONAL RELATIONS

The most important event of the year in the field of international health relations was the signing at Habana, Cuba, on November 14, 1924, of an international sanitary convention known as the Pan American Sanitary Code. This code provides for the collection and dissemination of information concerning the incidence and spread of communicable disease and describes and standardizes the measures necessary to prevent the transmission of the quarantinable diseases from one country to another.

Each signatory government agrees to transmit to each of the other signatory governments and to the Pan American Sanitary Bureau, at stated intervals, information concerning plague, cholera, yellow fever, smallpox, typhus, epidemic cerebrospinal meningitis, acute epidemic poliomyelitis, epidemic lethargic encephalitis, influenza or epidemic la grippe, typhoid and paratyphoid fevers, and such other diseases as the Pan American Sanitary Bureau may, by resolution, add to the above list; and to notify the above-mentioned agencies of the appearance in its territory of each authentic or officially suspected case of plague, cholera, yellow fever, smallpox, or any other dangerous contagion liable to be spread through the intermediary of commerce.

Provision is made for the publication of the preventive measures which are put into effect to control an outbreak of disease. This procedure is necessary for the information of the other governments so that duplication of work may be avoided. The establishment of a central statistical office for the collection and publication of morbidity and mortality statistics is an important feature of the Code. Reasonably accurate vital statistics are an essential element of the armamentarium of the sanitarian.

The securing of bills of health and other sanitary documents are necessary to establish the sanitary status of a vessel for the information of the quarantine officer at the port of arrival and to direct the attention of the transportation company and the master of the vessel to the requirements of the health authorities.

The advantage of uniformity in these documents throughout the American Republics is obvious.

For the proper treatment of a vessel at the port of arrival it is essential that the quarantine officer be informed as to the sanitary condition of the ports which it has visited, and it will be very useful to the sanitary authorities of any port to know where they stand with reference to the other ports of their own and other countries. It is believed that the classification of all the ports in these Republics with reference to their facilities for preventing the spread of epidemic disease, by an impartial and competent agency, will have a most salutary effect upon quarantine administration in the Western Hemisphere.

In the interest of uniformity of procedure the classification of vessels is an important step in advance.

The measures prescribed for the treatment of vessels at quarantine, though conservative, are in line with the most recent discoveries concerning the manner in which the quarantinable diseases are propagated and have all been thoroughly tried out in successful practice.

The fixing of uniform standards in the use of sulphur dioxide, hydrocyanic acid, and the cyanogen chloride gas mixture in the fumigation of vessels is of paramount importance to steamship companies as well as to quarantine officers. It is expected that considerable economy and greatly increased efficiency will result therefrom.

From the standpoint of quarantine officers, as well as in the interest of the traveling public, it is highly important that the standard of qualification for ships' surgeons be raised and maintained at a high level. It is believed that chapter 8 of the code will aid materially in that direction.

Perhaps the most important and far-reaching portion of the code is the provision imposing additional duties upon the International Sanitary Bureau and, incidentally, changing its name to the Pan American Sanitary Bureau.

The Pan American Sanitary Bureau is made the "central coördinating sanitary agency of the various member Republics of the Pan American Union, and the general collection and distribution center of sanitary information to and from said Republics."

It thus becomes the duty of this bureau to institute the necessary measures looking to the collection and distribution of that vast fund of information necessary for the proper functioning of the quarantine stations of half the world.

Arrangements were made with the director general of health for the Commonwealth of Australia for the acceptance, by United States quarantine officers, of fumigation certificates issued and signed by the quarantine officers at Adelaide, Brisbane, Fremantle, Melbourne, Newcastle, Sydney, Thursday Island, and Townsville, Australia, when the methods followed are equivalent to those required by the United States quarantine regulations.

Similar arrangements were made with the Minister of Health of the Dominion of Canada for the acceptance of certificates issued by the port medical officers at Halifax, Montreal, Quebec, St. John, Vancouver, and William Head, Canada.

MARITIME QUARANTINE IN HAITI

At the request of the sanitary authorities of Haiti, Passed Asst. Surg. J. F. Mahoney was detailed to the office of the American consul at Port au Prince.

Doctor Mahoney's activities consisted in assisting the National Health Service of Haiti in preparing modifications of the quarantine laws and procedures necessary to conform to the provisions of the Pan American Sanitary Code. A system for the collection and publication of morbidity reports was established. The medical aspect of the immigration question was also considered.

The rapid expansion of the National Public Health Service has made it possible to consider the quarantine situation from a national point of view. In reorganizing the quarantine service the attempt was made to correlate it with the general health service and to reduce the inconvenience to commerce to the lowest point consistent with safety, while retaining broad powers which can be invoked when necessary.

Provision has been made at each port for the inspection of vessels and the detention of persons exposed to quarantinable disease. The isolation facilities of the Government hospitals will be utilized for the detention of exposed persons. Plans have been completed for the erection of a quarantine station and delousing plant at Port au Prince which, it is expected, will be adequate for the entire island. The fumigation of vessels when required will be performed at this station.

In compliance with the requirements of the Pan American Sanitary Code for the collection and publication of morbidity statistics, the necessary changes were made in the existing law and a system providing for weekly reports by physicians was established.

A law providing for the deportation of aliens unable to qualify as being physically and mentally sound, while providing liberal bonding features for the admission of health seekers, is being drafted.

VIOLATION OF QUARANTINE LAWS

During the fiscal year the department assessed fines aggregating $1,995 for violations of the act of February 15, 1893, because of the failure of masters of vessels to present American consular bills of health.

SUMMARY OF TRANSACTIONS AT NATIONAL (CONTINENTAL AND INSULAR) QUARANTINE STATIONS

Total inspections:[1] Vessels, 22,598; crew, 1,270,680; passengers, 814,957. Total persons inspected, 2,085, 637. Vessels passed on certificate of ship's medical officer, 653.

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[1] An inclusive figure, regardless of treatment or report elsewhere.

Persons and vessels detained or treated—Those inspected only not included

	Nature of infection							
	Yellow fever	Rodent plague	Human plague	Small-pox	Typhus	Cholera	Leprosy	Total
Vessels from infected ports [1]	286	4,381	1,310	905	353	234	110	7,579
Infected vessels [2]		2	1	8			7	18
Number of cases [3]		7	1	6			7	21
Number of crew detained	306		4	147	1	6	3	467
Number of passengers detained	22			40	90		2	154
Persons bathed and disinfested				46	76			122
Persons vaccinated				1,436				1,436
Laboratory examinations (persons) [4]	33		7		67	7	10	124
Vessels fumigated: [5]								
HCN	1	2,149	198					2,348
SO_2	5	1,952	2					1,959
CNCl	3	2,702					1	2,706
HCN and SO_2		24						24
HCN and CNCl		102						102
Formaldehyde							1	1
Formaldehyde and SO_2				1				1
Total vessels fumigated								7,141

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[1] That is, ports which have been designated as infected by circular letter, publication of cases in public health reports, etc.

[2] Vessels with cases on board on arrival or reported en route.

[3] Includes carriers.

[4] Includes microscopical examinations of blood, excreta, tissue, etc.

[5] Includes vessels fumigated after passing quarantine in accordance with provisional pratique. Periodic fumigations for destruction of rodents are listed in the "Rodent plague" column. Vessels fumigated are entered in the columns indicating the disease for which fumigated, as well as opposite the fumigating agent used.

Number of rats destroyed on ships, 36,800; rats examined, 23,880.

TRANSACTIONS AT CONTINENTAL QUARANTINE STATIONS

Summary of transactions at continental quarantine stations for the fiscal year ended June 30, 1925

Station	Vessels in-spected	Vessels fumi-gated	Passengers and crews in-spected
Atchafalaya (Morgan City)	0	0	0
Baltimore	728	368	26,367
Beaufort	3	0	224
Biscayne Bay	394	0	12,288
Boca Grande	40	0	998
Boston	918	215	96,986
Brownsville [1]	0	0	2,167
Brunswick	20	3	620
Cape Fear	69	21	2,102
Cedar Key	0	0	0
Charleston	208	30	6,132
Columbia River	156	101	5,537
Coos Bay	30	28	847
Cumberland Sound	10	4	372
Delaware Breakwater	5	0	133
Eagle Pass [1]	0	0	2,757
Eastport	0	0	0
El Paso [1]	0	0	12,313
Eureka	6	0	256
Fort Bragg	1	0	30
Fort Monroe	836	287	31,501
Freeport	74	2	1,341
Galveston	1,050	247	39,648
Georgetown	7	0	54
Gloucester	0	0	0
Gulfport	54	24	1,200
Hidalgo [1]	0	0	2,028
Hoquiam (Aberdeen)	69	72	3,016
Ketchikan	0	0	0
Key West	254	25	37,519
La Jitis [1]	0	0	0
Laredo [1]	0	0	29,367
Marcus Hook (Philadelphia)	1,068	503	38,869
Mobile	336	138	9,566
Monterey	0	0	0
New Bedford	4	0	131
New Orleans	3,511	1,715	102,032
Newport, R. I	10	0	299
Newport, Oreg	0	0	0
New York	4,877	1,105	987,704
Ogdensburg	0	0	0
Pascagoula	19	5	106
Pensacola	418	54	4,411
Perth Amboy	42	21	1,185
Port Angeles	10	1	158
Port Aransas	0	0	0
Port San Luis (Port Harford)	18	0	647
Portland, Me	149	35	7,090
Port Townsend	314	43	28,780
Presidio [1]	0	0	2
Providence	116	4	9,115
Rio Grande and Roma [1]	0	0	1,060
Sabine	510	196	15,882
St. Andrews	29	17	480
St. George Sound	2	0	16
St. Johns River	126	27	3,865
St. Joseph	9	0	43
San Diego	850	7	14,521
San Francisco	579	688	96,333
San Pedro	1,316	311	65,397
Santa Helena [1]	0	0	0
Savannah	152	23	4,819
Seattle	0	186	0
South Bend	7	6	300
Tampa Bay	325	95	7,309
Vineyard Haven	2	0	13
Washington, N. C	0	0	0
Total	19,731	6,607	1,715,936

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[1] Border stations. Figures do not include local travelers who, however, were subjected to cursory inspection. Through travelers were given close examination.

REPORTS FROM CONTINENTAL QUARANTINE STATIONS

Baltimore (Md.).—Acting Asst. Surg. T. L. Richardson in charge. Post-office and telegraphic address, Curtis Bay, Baltimore, Md.

No quarantinable diseases were encountered on incoming vessels.

Early in the morning of April 28, 1925, the boat house and its contents, consisting of sodium cyanide, sodium chlorate, hydrochloric acid, denatured alcohol, equipment for fumigating vessels, ship chandlery, paints, etc., were totally destroyed by fire. The gasoline launch *Grebe* took fire and was a total loss. Considerable damage was done to the wharf and piling. The cause of the fire was not definitely determined.

Because of inadequate storage facilities it is necessary to use rooms in the detention barracks for this purpose, thereby seriously interfering with their proper function in case of the detention of a vessel. The destruction of the boathouse has aggravated the condition due to lack of space for storage.

All branches of the work at this station showed a considerable percentage of increase over the previous fiscal year.

Boston (Mass.).—Surg. Friench Simpson in charge. Post-office and telegraphic address, Gallops Island, Boston, Mass.

The quarantine station is located on Gallops Island 6 miles east of Boston, and consists of an administration building, power plant, quarters for the medical officer in charge, the pharmacist, the nurses, and the employees, hospital, laboratory, delousing plant, and barracks. The hospital consists of two wards and 12 rooms; total capacity, 40. The barracks provide 1,272 bunks and 89 beds. Detention capacity, 1,361. Total capacity, including hospital, 1,401.

Water is supplied through a main, and electric and telephone service by cable from the mainland.

Since January, 1925, record has been kept showing the location of rats found dead following fumigations. Ninety-two vessels were examined for this purpose. Fifty-five vessels, or 59 per cent, were found without rats upon search after fumigation. The remaining 37 vessels yielded 511 rats, of which 332 were identified as *Mus rattus* and 179 as *Mus alexandrinus*. Three hundred and twenty-four rats were found in the holds and 187, or 36 per cent, were found in other compartments, 144 having been obtained from storerooms.

Among the 37 vessels found rat infested, 13 were of Japanese nationality, from which 275 rats were obtained, or an average of 21 rats per vessel. The remaining 24 vessels, of various nationalities, yielded 236 rats after fumigation, or an average of 9 rats per vessel. Only 2 vessels among 15 Japanese vessels fumigated were found rat free. Among 39 vessels of American registry 27, or 69 per cent, were rat free; and among 15 vessels of British registry 9, or 66 per cent, were rat free.

No vessel arrived with quarantinable or suspected quarantinable disease aboard. Only one vessel was detained in quarantine. A Coast Guard cutter from which a case of smallpox had been previously removed was remanded from Woods Hole to this station for the vaccination, detention, and observation of the crew. The crew of 50 were vaccinated on arrival. Forty-seven showed a satisfactory immune reaction within 48 hours, while 3 were held to complete a 14-day period of observation. No cases of smallpox developed.

The inspection of arriving steerage passengers for vermin was continued throughout the year, the work being performed by Public Health Service nurses and a male inspector. During the 12-month period only 15 persons, distributed among eight passenger vessels, were found louse infested. These cases were deloused aboard while in quarantine without being removed to the quarantine station.

The low rate of infestation as compared with former years is no doubt due to the excellent preliminary inspection service conducted by service officers abroad in ports of departure, and to the cooperation of ships' officers who maintain a daily inspection service en route, delousing vermin-infested steerage aboard before arrival.

The laboratory examination of rats recovered from fumigated vessels and the inoculation of guinea pigs with an emulsion of pooled splenic tissue from such rats, has been continued throughout the year.

Rodent examination summary

Species	Male	Female	Total examined	Noted pregnant	Foeti noted
M. norvegicus	9	11	20	1	8
M. alexandrinus	103	108	211	29	240
M. rattus	247	248	495	65	494
Total	359	367	726	95	742

Ninety-three additional rats, received from Portland, Me., were examined.

Brunswick, (Ga.)—Acting Asst. Surg. R. E. L. Burford in charge. Post-office and telegraph address, Box 203, Brunswick, Ga.

The transactions at this station were fewer than during the previous fiscal year because a considerable number of the foreign vessels previously entering this port entered and cleared at some other United States port. No quarantinable disease was encountered.

Repairs to buildings and floating equipment were made and a contract for the installation of an electric lighting plant for the wharves and buildings of the station has been awarded.

Columbia River (Oreg.)—Surg. H. W. Wickes in charge. Post-office and telegraphic address, Astoria, Oreg.

On November 11, 1924, the Japanese Steamship *Rakuyo Maru* arrived from oriental ports with one case of smallpox on board. Since the vessel had been remanded from the quarantine station at Angel Island, where all on board had been vaccinated, only the patient with his mother, father, two other children and two members of the crew were detained at the quarantine station. Four were vaccinated.

Delaware Bay and River.—Surg. F. A. Carmelia in charge. Post-office and telegraphic address, Marcus Hook, Pa.

The Delaware Bay and River quarantine system comprises four stations: The administrative headquarters and principal boarding and inspection station at Marcus Hook, Pa.; the fumigation headquarters at the United States customshouse in Philadelphia, Pa.; the Reedy Island, Del., detention station; and the Delaware Breakwater quarantine station located at Lewes, Del.

The Marcus Hook station is located on the Delaware River 20 miles below Philadelphia and is equipped with apparatus for disinfection and facilities for the detention of 300 persons. The Reedy Island station is located 40 miles below Philadelphia and is equipped with disinfection apparatus and facilities for the detention of 400 persons. This station is really a reserve station to supplement the facilities at Marcus Hook. The Delaware Breakwater station is 120 miles below Philadelphia and is in the charge of a caretaker. The office in the customhouse at Philadelphia is the headquarters for the fumigation of vessels and for the issuance of port sanitary statements. Approximately 90 per cent of the fumigations are done at the wharves in and near Philadelphia. The remaining 10 per cent of the fumigations are done at, or near, the Marcus Hook station. Since the Philadelphia water front is approximately 50 miles long, facilities for transportation are essential for carrying out the fumigation and inspection of vessels at their berths.

The sanitary status of the vessels entering the port showed continued improvement, particularly with respect to personnel. It was not found necessary to detain a single vessel on account of quarantinable disease. Since but few regular line vessels make Philadelphia their first port of call, the number of vessels to be fumigated in proportion to the number inspected is relatively high. Thirty-five per cent of the vessels inspected were fumigated. Seventy per cent of the vessels fumigated were from ports infected or suspected of being infected with plague, while 30 per cent were fumigated because six months had expired since the last fumigation. Eighty-four per cent of the vessels entering the port under provisional pratique completely discharged their cargoes and were fumigated, while 16 per cent were remanded to some other port for fumigation. The growing tendency for vessels from foreign ports to call at several ports in the United States complicates the enforcement of provisional pratique. Frequently cargo is discharged and taken on at each of the several ports of call in the United States. Another factor tending to increase the number of vessels remanded to Philadelphia for fumigation from other ports is the increase in "around the world" steamship service.

Galveston (*Tex.*)—Senior Surg. G. M. Guiteras in charge.

During the fiscal year the number of vessels inspected increased 15 per cent, the number of vessels spoken and passed increased 11 per cent; the number of crew inspected increased 15 per cent; the number of passengers inspected increased 5 per cent; and the number of vessels fumigated increased 38 per cent.

The additional work was accomplished without any increase in the number of personnel or in operating expenses. The station is undermanned and at times it has been difficult to carry on as smoothly as is desirable. At least four additional fumigators are required. The Bureau has recently authorized the appointment of an acting assistant surgeon to relieve the medical officers at present on duty when they are absent on account of illness or on authorized leave.

On July 11, 1924, the American steamship *Mount Evans* arrived from England, by way of Key West. One of the personnel who had developed smallpox en route had been landed at the United States Marine Hospital at Key West for treatment. Upon arrival at quarantine the crew were revaccinated and detained in accordance with paragraph 110 of the quarantine laws and regulations.

Gulf (*Miss.*)—Acting Asst. Surg. C. A. Sheely in charge. Post-office and telegraphic address, Gulfport, Miss.

A considerable number of the foundation piles of the water tower and of the hospital were replaced by new piles. The hospital and water tower were repainted and repaired. The old storm tower was torn down and removed. A considerable portion of the piles of the main wharf were set in concrete bases.

Key West (Fla.).—Acting Asst. Surg. J. Y. Porter, jr., in charge.

On July 8, 1924, the American steamship *Mount Evans* arrived from England, with a seaman infected with smallpox on board. The sick person was removed, the crew vaccinated and the vessel proceeded to Galveston.

Mobile (Ala.).—Surg. C. H. Waring, in charge.

All quarantine activities are transacted at Mobile and vessels are fumigated alongside the piers. Weekly inspection trips are made to the quarantine station at Fort Morgan at which time supplies are carried to the caretaker of the quarantine station, the Army caretaker in charge of the fort, the lighthouse keepers near the fort, the employees of the Tropical Radio Co. and to the Alabama Pilots' Association. The station at Fort Morgan is held in readiness for use in case of necessity. The buildings are in poor condition since practically all of the piles are being destroyed by the teredo.

New Orleans (La.).—Surg. D. C. Turnipseed in charge. Post-office and telegraphic address, Quarantine, La.

This station is operated in three divisions. The headquarters, boarding, inspection and detention station being located at Quarantine, La., 90 miles below the city of New Orleans. Certain vessels are inspected and most of the fumigations are performed at the city of New Orleans.

The practice of boarding vessels in the city was inaugurated August 1, 1924, in order to obviate, in so far as practicable, the delays to vessels arriving at quarantine after sunset. By the present arrangement, vessels from clean ports, which have no suspicious illness on board, are permitted to pass the quarantine station and proceed up the river to the quarantine anchorage near the city, where they are boarded and inspected the following morning. Vessels with illness on board or from suspected ports are inspected at the quarantine station. During the close quarantine season, vessels from ports in the yellow fever zone are required to stop at the quarantine station for inspection. From the date of the opening of the city boarding station until the close of the fiscal year, 525 vessels were inspected. It is estimated that at least 3,236 hours were saved these vessels. This is an average of six hours per vessel.

Plague-infected rats were trapped in New Orleans December 1, 1924. Following this discovery and incident to the plague eradication campaign inaugurated by the service in cooperation with the State and local health authorities on December 13, 1924, the administration of the fumigation division was transferred to the headquarters for the eradication of plague. This temporary transfer was made for convenience in administration only and will be discontinued with the plague eradicative measures.

Plague was discovered on two vessels entering the port of New Orleans during the fiscal year. On October 27, 1924, the Greek steamship *Atlanticos*, 25 days out from Barcelona, Spain, and 22 days out from Oran, Algeria, arrived at New Orleans with a case of human plague on board. The patient was a stowaway. This vessel had been engaged in trade between ports in Spain and the east coast of South America. Upon fumigation of the vessel, 29 rats were recovered, 6 of which were found to be plague infected.

On November 14, 1924, the American steamship *Craftsman* from Calcutta, Colombo, Port Said, London, Liverpool, and Savannah, Ga., arrived at New Orleans, having been remanded from the United States Quarantine Station at Savannah, Ga. Upon fumigation of this vessel, 29 rats were recovered. Three of these rats were regarded as suspicious of plague upon gross examination, and when a composite inoculation of a guinea pig was made, the diagnosis of plague was confirmed.

A comparison of the number of vessels inspected at this station during each of the past four years shows a steady increase. Although the passenger traffic into New Orleans is relatively small, the freight trade is large. Recent railroad mergers and revision of freight rates render it probable that the volume of shipping will increase considerably within the next few years.

The present floating equipment is inadequate; an additional boarding launch is needed at the quarantine station.

New York, N. Y.—Surg. S. B. Grubbs in charge. Post-office and telegraphic address, Rosebank, N. Y.

The report of the routine operation of this station is very similar to that of last year. Scientific studies, however, have expanded greatly. Improvements in technique, investigation of new methods, and a study of the many quarantine problems, especially those connected with plague, have been constantly carried on with gratifying results. The details of work accomplished and the program which it is hoped to follow are given in the body of the report.

The headquarters of the New York quarantine station are at Rosebank, Staten Island, N. Y., on the west bank of the Narrows, between the upper and lower harbors. Here are located the administration office, boarding office, laboratory, tugs, docks, garages, mechanical shops, supply depot, and officers' quarters.

Incoming vessels, except a few which pass the substation at City Island on Long Island Sound, are boarded and inspected at Rosebank.

Hoffman and Swinburne Islands are located 3 and 4 miles, respectively, down the harbor from quarantine headquarters. Hoffman Island is used for hospitalization, detention, and delousing purposes. It is supplied with water, electricity, and telephone service from Staten Island. Swinburne Island has not been in active operation the past year, but can be made ready for use on short notice.

Port sanitary statements are issued from the station office at the customhouse, New York City.

ADMINISTRATION

This division directs the general policy of the station, coordinates the work of the various divisions, and handles finances. For convenience in administration, there are three subdivisions, namely (*a*) personnel and accounts, (*b*) property, and (*c*) mechanical and floating property board. A reduction in force has been effected during the year by consolidation of duties, thus making for economy in administration.

Station personnel

Classification	On duty June 30, 1924	On duty June 30, 1925	Classification	On duty June 30, 1924	On duty June 30, 1925
Commissioned officers	5	3	Pilots	3	3
Acting assistant surgeons	10	11	Marine engineers	4	4
Pharmacists	2	2	Other employees	137	132
Consulting bacteriologist	1	1			
Nurses	3	2	Total	174	167
Clerks	9	9			

The transportation equipment consists of three steam tugs, one semi-Diesel engine work boat, and one 30-foot gasoline launch. All vessels in commission are in excellent condition. The steam tug *Joseph Kinyoun* has been condemned and replaced by the tug *McClintic* transferred from Philadelphia.

There are eight heavy trucks, some especially designed for fumigation, and five ambulances and light trucks in use.

BOARDING

The personnel consists of six medical officers, two of whom are detailed from Ellis Island for the medical inspection of aliens, two male inspectors, and two female inspectors. This is a reduction of one medical officer since last year. The duties of this division include: (1) The inspection of vessels, passengers, and crews from foreign ports for the detection and exclusion of quarantinable diseases and disease transmitting vermin and insects; (2) the certification or enforcement of disinfection of certain articles of freight; (3) the issuance of fumigation orders under provisional pratique to masters of vessels requiring fumigation for the destruction of rodents; (4) the inspection of crews of freight vessels in conformity with the United States immigration laws and regulations; (5) regular inspection and control of all routine station activities by the officer of the day, who is selected from the medical officers on boarding duty for a period of 24 hours.

The boarding of vessels in quarantine begins at the nearest quarter hour to actual sunrise, but not earlier than 5 a. m. for cargo vessels and 6 a. m. for passenger vessels. Boarding ends at the even quarter hour following actual sunset, but not earlier than 6 p. m. (standard time). Vessels arriving between actual sunset and 8 p. m. are boarded on special request.

The interchange of information between this station and service officers in Europe has been maintained as in the past. Weekly reports of passengers found vermin infested on arrival here are sent to the service office in Paris.

Smallpox.—Three persons suspected of being infected with smallpox were removed for observation, but none developed the disease. Demonstration has been made of the value of the system of vaccination and certification in diminishing delay to a vessel with a well vaccinated crew and eliminating delay if the majority of the crew have been vaccinated and certified.

Plague.—On April 17, 1925, the British motor freighter *Silver Larch* arrived from far eastern ports. Advice had been received that a case of bubonic plague had been removed at Port Said, but that the vessel was free from rats. The vessel was inspected for indications of rats and rat harborage and was fumigated in the stream, and discharged New York freight. The ship and wharf were trapped several times, all with negative results. After partial discharge the vessel proceeded to Philadelphia and thence to Baltimore, where she was fumigated empty, again without results. As the first inspection showed this vessel to be practically rat proof and free from rats, it is cited as an instance of the value of rat-proof construction as the principal and logical defense against plague transmission, fumigation being an extra precaution justified by unusual circumstances.

Typhus fever.—No case of typhus fever was encountered during the year. Careful examination of the third-class passengers for vermin was continued, and all those found infested were deloused on board or at Hoffman Island. It is evident that the examination made in foreign ports under the direction of service officers is not only the best defense against lice-borne diseases, but also that this examination is having a marked effect upon standards of health and personal cleanliness.

Leprosy.—Two persons infected with leprosy were discovered on arriving vessels and were removed to Hoffman Island. In each case the diagnosis was confirmed at the station laboratory. Since both patients were American citizens, they were transferred to the National Leprosarium, at Carville, La.

No cases of cholera, yellow fever, or anthrax arrived during the year.

Close cooperation with the local health authorities has been continued. Nonquarantinable contagious diseases are reported by telephone to the New York City Health Department. The sick persons remain on board ship until a representative of the city health department arrives and arranges for their proper disposal.

The experiment of having the customs officer, who gives preliminary entry, board vessels with the medical officer, begun during the previous fiscal year, was continued, and is giving satisfaction with practically no delay. At present the quarantine, customs, and immigration services all use the quarantine tugs, resulting in a decided economy.

Close cooperation has been maintained with the United States marine hospital at Stapleton. American seamen who are sick or injured are frequently removed on the quarantine tugs to the ambulance waiting on the pier so that they are brought to the hospital quickly and with a minimum of disturbance. On the other hand, we have continued to treat at Hoffman Island contagious diseases for the marine hospital thus eliminating their need for a contagious ward.

LABORATORY DIVISION

Three medical officers with one assistant and one attendant are assigned to laboratory work. On account of several exigencies, especially the epidemiological study of typhoid fever in New York City and vicinity, in which this station assisted, the laboratory has been short handed. The laboratory personnel has been increased by one at the expense of the boarding division. This arrangement permits more research work without delay to vessels as the laboratory supplies officers to the boarding force when they are needed in emergencies.

The laboratory work at this station may be divided into routine and research. The routine consists of (1) boarding vessels for consultation with the boarding officer and performing such laboratory tests as may be indicated. All cases with fever or in any way suspicious must be passed upon by a laboratory officer before release, this officer being the official expert diagnostician. In many cases the Weil-Felix agglutination test for typhus fever is performed on board the vessel. (2) Examination of rats, obtained from vessels by fumigation or trapping, for evidence of plague infection including a dissection and post mortem examination for gross lesions and the inoculation of guinea pigs from the livers and spleens of all rats. The rats are also classified according to species. (3) Supervision of vaccinations against smallpox, keeping proper record of each, reading of immune reactions and issuing vaccination certificates. (4) Various routine examinations as shown in the table.

The research consists of (*a*) the study of measures for the control of plague. A rather extensive program has been outlined, since there are many unknown factors of the greatest importance in controlling the spread of this disease. This program contemplates improving the fumigation, trapping, and rat proofing of vessels, as well as the study of the agencies involved in the transmission of plague. For this purpose, live rats are being trapped along the water front and complete data as to the species of fleas, infestation by species, range of temperature and humidity, environment, etc., are being recorded. It is hoped that this work will encourage an extensive study of the rat-flea index from which the degree of infectability of various ports may be determined. It is thought possible that, when sufficient data have been collected, it might be feasible to determine the degree of infectability from such commonly known factors as temperature and humidity. (*b*) The study of the literature, current articles and correspondence. (*c*) The study of rat fleas by species and the preparation of a simple key for their identification. (*d*) Careful identification of rats by species. It has been noted that many rats do not conform to the descriptions of known American species.

Fumigation experiments with hydrocyanic acid-cyanogen chloride and cyclon B have been conducted. A comparison of the effect of using sea and fresh water in fumigating with cyanogen chloride has resulted in the recommendation that fresh water be used. Studies of the effect of varying temperatures, especially extreme cold, upon the generation of cyanogen chloride by the barrel method have been continued. Many of the difficulties caused by cold weather have been overcome, but further work should be done.

Studies of the vacuum cyanide method of killing lice and similar vermin in clothing and unopened baggage were completed, and the results published in Public Health Report of February 20, 1925. The report shows that this method will kill lice and their eggs inside fairly large pieces of baggage. The proportion of cyanide must be increased if deep penetration is to be obtained; and, since fabrics retain considerable gas after the use of high concentrations, clothing treated by this method should be thoroughly aired before being worn.

In four of five persons suspected of being infected with typhus fever, examined at the request of the city health department, the diagnosis was confirmed by a positive Weil-Felix test.

Laboratory division transactions

	Rats from vessels	Rats from quays
Rats dissected and examined microscopically:		
Mus rattus	6, 991	20
Mus alexandrinus	6, 745	9
Mus norvegicus	672	2
Not identified	300	2
	14, 708	33
Total, vessels and quays		14, 741

Rats tests by inoculation of guinea pigs	14, 741
Guinea pig inoculations	1, 542
Rats found plague infected	0
Weil-Felix reactions performed (positive)	4
Weil-Felix reactions performed (negative)	63
Smallpox vaccinations performed	18
Smallpox vaccinations inspected for reaction and cards issued	18
Blood counts made	2
Blood smears examined	4
Tissue smears examined for leprosy (positive)	8
Specimens of urine examined for clinical diagnosis	41
Specimens of urine examined for tuberculosis	1
Tests for Widal reactions	33
Cultures examined for diphtheria	10
Sputum examined for tuberculosis	6
Triple typhoid vaccinations administered	3
Vessels boarded by laboratory officers	141
Consultations in cases outside of service work	5
Diphtheria cultures tested for virulence	1

HOSPITAL, DETENTION, AND DELOUSING DIVISION

The personnel attached to Hoffman Island consists of 1 medical officer, 2 nurses, and 60 other employees, which is 13 less than were employed last year.

Hospital transactions

Disease	Number of cases	Recovered	Improved	Unimproved	Dead
Smallpox (remaining from last year)	1	1			0
Measles	2	2			0
Electric shock	1		1		0
No disease	3	3			0
Leprosy	2			2	0
Fever, cause undetermined	1	1			0
Sprain	1	1			0
Perforating wound	1			1	0
Synovitis, acute	1		1		0
Tonsilitis, acute	1	1			0
Chicken pox	8	8			0
Rubella	1	1			0
Ulcer	1		1		0
Scarlet fever	3	3			0
Chancroid	1		1		0
Diphtheria	1		1		0
Syphilis, secondary	1		1		0
Total	30	21	6	3	0

Number of patients, 30; number of hospital days, 365. Of these, 12 patients were from the United States Marine Hospital, hospital days, 214.

Detention and delousing transactions

Passengers detained	95	Persons vaccinated	2
Crew detained	4	Pieces of baggage fumigated	71
Total days detained	409	Chinese detained	190
Persons deloused	75	Detained days	15, 438

FUMIGATION DIVISION

This division has charge of the fumigation, trapping, and rat proofing of vessels. The personnel consists of a medical officer in charge of the division, 4 medical officers in charge of fumigating crews, 1 clerk, 1 messenger, 4 fumigating crews of 6 men each, and 2 trapping crews of 4 men each. During the latter part of the year, 1 trapping crew has worked on rat proofing exclusively.

Fumigation.—Hydrocyanic acid gas has been used for oil tankers and the hydrocyanic acid-cyanogen chloride mixture for other vessels. No serious accident occurred during the year. Late in May an experimental series of fumigations, using 80 per cent liquid hydrocyanic acid gas with 20 per cent liquid cyanogen chloride, was begun. Twenty-seven vessels were fumigated by this method, and it is planned to continue using this agent for a while in order to get all variations of weather before definite recommendation is made. From these 27 vessels, with a total net tonnage of 84,119, a total of 225 rats were obtained. Results, therefore, are encouraging. Lethal and warning properties as well as diffusion and penetration of the gas appear to equal the regular method. At present the cost is higher, but this may be obviated. The sprays first used for applying the liquid mixture corrode and freeze in winter, but new apparatus has been devised which apparently will overcome these disadvantages. The fact that much less apparatus is needed when the liquid mixture is used is a distinct advantage.

In cooperation with the laboratory division, practical tests have been made with cyclon B, a combination of poisonous gases, chiefly hydrocyanic acid gas, absorbed in silicious earth and put up in tin cans. When exposed to the air the gas is released. Two vessels were fumigated throughout and separate compartments of six vessels were fumigated with cyclon B. In each case results obtained by this method were compared with those obtained by the standard method in respect of lethal properties, diffusion, and penetration, and effect on metal, clothing, and food. These limited experiments indicate that cyclon B has advantages that warrant a prolonged trial.

Trapping.—The practice of trapping vessels in conjunction with fumigation was continued. Two crews of four men each were engaged in this work. Vessels known to be badly rat infested or which could not be fumigated without undue delay, were trapped. Double action snap traps, set at the rate of 50 traps for each 1,000 net tons of the vessel, were used. Cage traps are used to trap the quays in order that live rats may be secured for laboratory study.

Trapping has proved a valuable adjunct to fumigation.

Results from trapping and fumigation

	Number of vessels	Rats from fumigation	Average per ship	Rats from trapping	Average per ship
Fumigated only	638	5,273	8.26		
Trapped only	114			1,311	11.5
Fumigated after trapping	166	1,025	6.1	1,490	8.7
Fumigated before trapping	301	3,880	12.9	1,391	4.6
Fumigated by steamship company of vessel under supervision	74	338	4.57		

Rat catch according to location on vessel

	Mess and provision stores	Holds	Ships stores	Crews' quarters	Staterooms	Unclassified superstructures	Total
Fumigated	93	7,683	886	267	35	1,214	10,178
Trapped	91	2,687	596	194	9	615	4,192

Rat catch according to age of vessel

	Number of ships fumigated	Number of rats obtained	Average per ship
Class A (built since 1915)	731	5,587	7.65
Class B (built between 1907–1914)	209	2,646	12.6
Class C (built before 1907)	165	1,945	11.8
Total	1,105	10,178	9.2

Rat proofing.—After considerable experimentation, rat proofing of vessels, in order to make them unsuitable for rat breeding, has been put into operation with gratifying results. In the last annual report a comparison was made of the results of fumigation and trapping, showing the imperfections of these measures, which nearly always leave a sufficient number of rats on board to breed.

It has long been known that the number of rats is limited by the food supply and by their ability to find protection and nesting places. Vessels should be so constructed that the means of subsistence and housing for rats would be eliminated. This is the accepted method in antiplague work on shore, where fumigation is rarely used and trapping is employed to locate infection rather than to get rid of rats. While it is believed that fumigation and trapping of vessels will continue to be of value, the rat proofing of vessels should take a distinct place in antiplague quarantine. The structure of a modern vessel makes internal rat proofing difficult, but the hull, which corresponds to the foundation of a building, is of necessity rat proof, and needs no attention.

Shipping companies have been quick to encourage improved methods of rat control. They recognize the economic loss caused by rats and frequently go to considerable expense to employ rat catchers. A certain company stated that in spite of quarantine requirements and their own efforts, many rats were on their best passenger vessels. At their request, station trappers were assigned to travel on some of these ships trapping, observing, and studying rat conditions on board. On one of these trips two trappers remained three weeks in England studying the methods of professional rat catchers in Southampton, Liverpool, and London. On all the ships studied, it has been found that rats have certain regular habits. They breed in certain places, go nightly over regular paths in search of food, and return when this has been secured. To protect food, block off communications, and abolish nesting places was the obvious thing to do in order to make rat life difficult or impossible. This is ship rat-proofing.

At present three vessels are estimated to be 15, 30, and 60 per cent rat-proof, respectively. Work is going forward on 10 more. Observations and trapping show that the rat population decreases regularly as the rat-proofing progresses. One ship has been carefully trapped for many months and gave a considerable catch that varied very little from voyage to voyage. On each trip 15 to 20 rats were caught in the provision storeroom. This was rat-proofed first. No rats have been caught there since, although the holds not yet rat-proofed continue to yield their usual quantity.

Standard specifications and methods for ship rat-proofing are necessary. These have been drawn up and have been submitted for publication, after consultation with several naval constructors who had offered their assistance. It should be noted that, although rat-proofing of vessels in New York is entirely on a voluntary basis so far as steamship companies are concerned, requests for this work far exceed the station's ability to comply with them.

GENERAL

Owing to many demands for explanations of various phases of the quarantine work, a series of six articles which, together, cover the station activities have been mimeographed and are ready for distribution. The titles are: (1) Organization, (2) inspection of vessels, (3) fumigation, (4) laboratory technique, (5) delousing methods, (6) regulations concerning the importation of dead bodies—a summary of requirements of Federal and local agencies.

A series of photographs showing the fumigation of a vessel has been made up in book form, and these with their titles give a pictorial description of the process.

A collection was made of the quarantine laws and regulations of 12 foreign countries. These were translated, briefed, and compiled in a comparative table for the purpose of study and reference.

As in the past, all newly assigned medical officers have followed a regular course of instruction in order to acquaint themselves with all phases of the station work. This course is taken regardless of rank or previous experience, and occupies approximately three weeks.

Twenty-two public-health officials from foreign countries visited the station, remaining from one day to several weeks. Included in this number are eight members of the interchange of health officials with the United States provided by the health section of the League of Nations, for whom a two-day program was prepared.

Excellent cooperation has been maintained with the district coordinator, supervising chief engineer, and other Government agencies and also with shipping organizations.

Improvement of the station grounds at Rosebank has followed a definite plan for the last four years and is now nearing completion. Not only are the grounds more beautiful and the pride of the neighborhood, but the upkeep is less expensive owing to the installation of concrete drains and sidewalks. It may be mentioned that we have justified the name "Rosebank" by the mass of roses now blooming on the terrace near the entrance gate.

A considerable proportion of the work recommended last year has been authorized and will be done as soon as possible. The principal items are the north dock, dredging the basin, and repairs to the coal dock at Hoffman Island. This will complete the plans made when the station was taken over and will provide protection and dockage not only for our own vessels but for those of other branches of the Government. Material has been furnished and the new garages and warehouses previously recommended will be built by the station force. The fences mentioned in previous reports have all been repaired. The work was done entirely by the station force except that a part of the north boundary fence was put in by St. John's Church. A new storage and loading platform has done much to solve the difficult problem of handling carboys of acid.

Studies in operating cost of quaratine vessels at this station show that the *Bratton*, designed and built to a large extent at this station, costs to operate approximately $16 per working-day against approximately $55 for a steam tug and $7 for a gasoline launch. The *Bratton* is 64 by 16 by 6½ feet and has a 100-horsepower semi-Diesel engine.

Taking into consideration the bonus, in amount $36,434.03, which was omitted from last year's figures, there was a decrease in the total expenses of the station of $22,355.35 from last year.

Port Townsend, Wash.—Surg. J. R. Hurley in charge.

On March 22, 1925, the steamship *Eldridge* arrived at quarantine from oriental ports via Dairen and Tsingtau with two cases of smallpox on board. The first person infected, who was in the pustular stage upon arrival at quarantine, had been diagnosed and isolated by the captain. The sick man was removed to the isolation hospital at the quarantine station. The remainder of the crew were vaccinated immediately after arrival and detained at the quarantine station until the vaccination mark showed evidence of immunity. The 22 of the 37 vaccinated, who showed immune reactions, were released within three days. Ten who developed vaccinoids were released after six days' detention. Three of the remainder developed vaccinoids later and were released after nine days. Two of the crew, who had not been previously vaccinated, developed typical takes. One of these developed typical variola vera, and was transferred to the isolation hospital after he had been on the station for 10 days. In this case the vaccinia and variola developed and matured concurrently. While the vaccination was performed too late to prevent the occurrence of smallpox, it probably modified the severity of the infection to some degree since, although the eruption was typical, the constitutional symptoms were less severe and the pitting was not so deep as in the first case.

From a study of the facts in the case, it appears that the disease was contracted at Dairen between February 20 and 23.

Of the personnel of 38 men, all but the 2 who developed smallpox had been previously vaccinated, several within the past two years.

The immunity reactions occurred among those who had been most recently vaccinated; the vaccinoids among those whose vaccinations were rather old; and the only take among those previously vaccinated was in the case of a person who had been vaccinated long before. The potency of the virus was demonstrated by the typical take in the case of the man who had never before been vaccinated and was at that time in the incubation stage of smallpox. Both cases of smallpox recovered and were discharged; the first after 21 days' and the second after 40 days' detention at the station.

The new salt water fire protection system, including a 100,000-gallon steel tank, motor pumps, mains, and hydrants, was completed and accepted as satisfactory. Four small sheds for housing the hose reels of this system were constructed by station labor.

The Post bakery building at Fort Warden, the mine planter *Major General Franklin J. Bell*, the destroyer *Somers*, the Coast Guard cutter *Snohomish*, and the surveying steamers *Discoverer* and *Pioneer* were fumigated with cyanogen chloride for the destruction of rats and insects.

Sabine, Tex.—Surg. T. J. Liddell in charge.

The Lake Sabine District comprises the ports of Beaumont, Port Arthur, Orange, Port Neches, Sabine Pass, and Sabine. All vessels entering this district are inspected and, if necessary, treated or fumigated at Sabine. The building of a new station has been recommended, since the present station is inadequate. Because of the fact that the State of Texas has been unable to furnish title to the quarantine properties, the purchase of which was authorized by Congress in 1920, it has been impracticable to transfer these properties to the Federal Government. The present station consists of one set of quarters, a rented office and storeroom, and the steamship *Lake Elmdale*, the latter being a United States Shipping Board vessel, which is used for housing persons held in detention. The building occupied by the medical officer is badly in need of repairs, but since the property does not belong to the Federal Government there are no funds available for putting it in condition.

The use of the cyanogen chloride gas mixture for fumigating vessels was inaugurated during the year.

San Diego, Calif.—Surg. J. F. Worley in charge. Post-office address, Point Loma, Calif.; telegraphic address, San Diego, Calif.

Although the number of vessels inspected is less than during the preceding fiscal year, the size of the vessels and the total number of persons inspected were considerably greater. The increase in the number of naval vessels inspected is due to the fleet maneuvers in the Pacific during the spring of 1923.

A 75-foot extension to the concrete sea wall was completed at the close of the fiscal year. Extensive alterations and extensions were made to the distributing system of the fumigating apparatus. These changes together with the new rubber hose, have placed the apparatus in first class condition. A contract has been let and work begun for repairs and replacement of piling under buildings and wharves to cost $9,200. A contract to paint all of the buildings at a cost of $3,795 has also been awarded.

San Francisco, Calif.—Surg. R. H. Creel in charge. Post-office and telegraphic address, Angel Island, Calif.

The incoming quarantine transactions have been rather uneventful. Personnel from three different vessels were held in detention in accordance with the provisions of paragraph 110, for the prevention of the introduction of smallpox. On November 6, 1924, the Japanese steamship *Rakuyo Maru* entered the port under the terms of a provisional pratique or remand from San Pedro because of the occurrence of a case of smallpox on the vessel during the voyage from South America to San Pedro. The crew and passengers were vaccinated at San Pedro and the ship was not allowed alongside a wharf at that port. Upon arrival at San Francisco, appropriate detention of contacts was made at the quarantine station until the completion of the period of incubation or until development of evidence of immunity. Several of the passengers were permitted to be transferred to another vessel out-bound to Japan and China. No secondary case occurred. Members of the crew of two vessels from Vancouver were held in detention at the quarantine station on account of the prevalence of smallpox at Vancouver and because these members of the crew had refused to be vaccinated at the time of the departure of the vessel.

As in former years the main activity was directed towards the prevention of the introduction of plague. During the year, 688 vessels were fumigated for the destruction of rats; 81 by hydrocyanic gas, 546 by cyanogen chloride gas, and 61 by sulphur dioxide. As a result of this procedure, 2,650 rodents were recovered from these vessels and delivered to the laboratory for necropsy. None was found to be infected. Of the number of rats recovered, 1,334 were *Mus alexandrinus*, 1,278 *Mus rattus*, 25 *Mus norvegicus*, 13 unidentified, and 715 *Mus musculus*. These figures are in keeping with observations made at this station for several years past, in that the Norway rat is but seldom found on trans-Pacific vessels.

Approximately two-thirds of the rodents recovered were found in the holds of the vessel and the remainder in superstructures. Three hundred and thirty-four of the latter were taken from storerooms and galleys, 101 from crews' quarters, and the remainder from miscellaneous superstructures and lifeboats, but chiefly from the poop deck, wherein are usually stored dunnage and litter. Of the vessels fumigated, 234 were direct from plague-infected ports in the Orient and South America. The remainder were fumigated in accordance with the quarantine regulations pertaining to periodic fumigations or in conformity with outgoing quarantine restrictions against vessels from Oakland, where rodent plague prevailed during the latter part of the fiscal year. It is of particular interest to note that no rats were recovered on 426 vessels. Some of the vessels of this group were cargo laden, and a thorough search was thus prevented; but for the most part it is believed that this negligible result was due to the actual reduction in the number of ship-borne rats. The greatest number of rats taken from any one vessel was 176. The average number of rats per vessel was four. There is no doubt that the repeated fumigation of regular line vessels entering San Francisco from foreign ports has made many of them almost rat-free. The exigencies of station operation did not permit of any extensive trapping of vessels, largely because of the lack of trained personnel. Some 10 or 12 trans-Pacific liners were thoroughly trapped subsequent to fumigation, with results that tended to confirm the effectiveness of the fumigation procedure and the previous statement that many of these liners are relatively rat-free. The *Taiyo Maru*, fumigated in June, was searched and yielded twelve rats as a result of fumigation. The trapping of the vessel for three days by an expert trapper yielded two more rats. The *President Pierce*, fumigated in June, yielded no rats as a result of fumigation, and two days' trapping was likewise negative. Similar experience was had with the *Tenyo Maru*. The *Persia Maru*, fumigated in June, yielded 32 rats as a result of fumigation, and no rats after two days' trapping. On the *Korea Maru*, 27 rats were destroyed by fumigation. One rat was recovered as a result of three days' trapping. The *President Cleveland*, fumigated in August, yielded 8 rats as a result of fumigation, and no rats as a result of three days' trapping. On one occasion, however, a trans-Pacific liner was fumigated with negative results, but intensive trapping thereafter resulted in the capture of six rats, all from the lifeboats on the poop deck. This was due solely to carelessness of fumigators in not properly searching or fumigating these lifeboats, and the incident serves to confirm what every experienced quarantine officer should know—that the effectiveness of fumigation depends largely on attention to details. A porthole carelessly left open, a ventilator uncovered, or a small compartment overlooked, may well serve to nullify the effect of fumigation.

On the discovery of plague infection among the rodents of Oakland, appropriate measures were instituted in the case of vessels wharfing at Oakland and Alameda. Such vessels were required to fend off with rat guards on mooring lines while at their quays, and to be fumigated before departure. In order to mitigate hardships on commerce and avoid needless fumigation, coastal and intercoastal vessels docking at Oakland and Alameda were not required to be fumigated oftener than once in 90 days, provided that in the meantime they properly fended off and rat guarded all lines. The data pertaining to this activity are included in the general report, as it is not practicable to segregate those vessels fumigated because of the outgoing requirements, inasmuch as a number of these vessels were also subject to fumigation because of incoming quarantine requirements.

Liquid hydrogen-cyanide and cyanogen-chloride have been used on several occasions by way of experiment in the fumigation of vessels, and plans are under way to employ this method of fumigation on a larger scale during the coming fiscal year. This method gives considerable promise of increased efficiency, particularly with respect to curtailing the period of detention of vessels and saving expense by elimination of equipment, and possibly through reduction in personnel.

During the period no accidents have been reported in connection with the fumigation of vessels at this port, when the fumigation was performed by service fumigators. A fatality was reported, however, in a small vessel, fumigated by a commercial company for the destruction of vermin.

Interesting observations of a practical nature have been made by Asst. Surg. Rice as to the destruction of cockroaches and devitalization of cockroach eggs by cyanogen-chloride and special report has been made thereon. It seems evident that cyanogen-chloride in the strength and duration of exposure prescribed by the United States quarantine regulations not only destroys roaches but also sterilizes the eggs.

Ships' manifests have been carefully examined to prevent the admission of anthrax-infected brushes from the Orient. Consignments of brushes not accompanied by consular certificates that the bristles or hair had been sterilized prior to manufacture of the brushes were rejected.

PHYSICAL IMPROVEMENT

During the year a new barracks building was erected which, when furnished with bunks, will accommodate approximately 100 persons. The roadway leading from the station grounds has been relocated to eliminate dangerous curves. This great improvement was made possible through the kindness and cooperation of the commanding officer of Fort McDowell. Considerable progress has been made in the reforestation of the hills surrounding the quarantine station; lawns have been extended, and shrubbery has been planted. The painting and repair of various structures and the repair of the roads have been continued by station labor. Heating plants have been provided for buildings 13 and 20-B, the work of installation to be done by the station force.

Cordial relations have been maintained with other branches of the Government and valuable assistance has been received and extended. The transportation afforded by the Immigration Service for passengers and freight between the San Francisco waterfront and the immigration station, located near the quarantine station, has been a great aid. In turn, the service has reciprocated through loan of the quarantine steamer *R. M. Woodward* for transport service when the regular immigration steamer was out of commission. The service is indebted to the Collector of Customs for the transportation to vessels of boarding officers when the quarantine steamer was out of commission or otherwise employed. Much helpful assistance has been received from the Army post, Fort McDowell, located on the eastern end of the island.

San Pedro, Calif.—Surg. H. A. Spencer in charge.

The outbreak of human plague in Los Angeles on October 19, 1924, and the subsequent finding of plague-infected rodents in that city made it necessary to increase the facilities and activities at this station. On January 15, 1925, outgoing quarantine measures for the protection of domestic and foreign ports, in communication with San Pedro, were instituted. All vessels arriving at San Pedro from other States and from foreign countries were required to fend off, rat guard, and submit to fumigation. The use of the cyanogen chloride gas mixture was begun on December 3, 1924. Prior to that date only sulphur dioxide was used for fumigation. The substitution of cyanogen chloride for sulphur dioxide has caused considerable favorable comment on the part of shipping interests.

Cooperation with other Federal agencies in the city has been maintained and in some instances has resulted in a reduction in expenditures. The boarding officer is accompanied by representatives of the Customs Service, the Immigration Bureau, and the Department of Agriculture, all of whom use the service launch when necessary. The poor condition of the engine of the launch *S. D. Brooks* renders it frequently necessary to hire a substitute launch.

The service barge *Disinfector* has been used for storage purposes. On December 25, 1924, Carl A. Erickson, who had been employed as watchman on the barge since 1913, was found dead in the slip near the barge, death apparently having been caused by drowning. Because of the expense of maintaining the barge and its limited usefulness, it will be disposed of in the near future.

TEXAS BORDER STATIONS

Quarantine transactions on the Texas-Mexican border for the fiscal year ended June 30, 1925

	Brownsville	Eagle Pass	El Paso	Hidalgo [1]	Laredo	Presidio	Rio Grande [2] and Roma	Total
Number inspected from interior Mexico	2,167	2,757	12,313	2,028	29,367	2	1,060	49,694
Number of local passengers inspected	825,646	733,549	2,085,862	36,504	853,382	8,889	35,978	4,579,810
Total number passengers inspected	827,813	736,306	2,098,175	38,532	882,749	8,891	37,038	4,629,506
Total number of persons disinfested	399	7,443	33,582	16	6,030	25	35	47,530
Total number of persons passed without treatment	823,861	728,863	2,049,286	38,344	836,105	8,240	37,038	4,521,737
Total number of persons vaccinated	3,525	2,500	15,281	264	46,644	626	1,125	69,965
Total number of sick held for observation	0	0	0	0	8	0	0	8
Total number of sick refused admission	28	164	26	8	0	12	4	242
Total pieces of baggage disinfected	672	8,633	6,017	0	5,354	172	28	20,876

[1] 3 cases of typhus certified at Hidalgo, Tex.

[2] 16 cases of typhus fever certified at Rio Grande, Tex.

Del Rio, Tex.—Acting Asst. Surg. H. B. Ross in charge.

In February, 1925, the Del Rio quarantine station was established with a personnel of one medical officer, two inspectors and one inspectress. Since that time arrivals from Mexico have been inspected and, when necessary, vaccinated and deloused and their clothing and effects disinfected. The quarantine station is located at the International Bridge, about 2½ miles distant from the town of Del Rio.

El Paso, Tex.—Surg. J. W. Tappan in charge.

The methods of disinfecting persons as a protection against the importation of typhus fever and vaccinating against smallpox were carried out as described in previous annual reports. There has been no outbreak of quarantinable disease in this vicinity either in the United States or in Mexico.

Smallpox has been practically stamped out in El Paso by the enforcement of an ordnance requiring revaccination of school children and house to house vaccination by the city health authorities. All persons entering the United States across the International Bridge, who can not show a recent successful vaccination against smallpox or evidence of an attack of the disease, are required to be vaccinated.

Persons who cross the International Bridge from Juarez to El Paso daily to work are required to pass through the delousing plant every eight days. A bath certificate is issued each time this takes place, the old certificate being taken up and destroyed.

Having been detailed to correlate and standardize the activities of the service, in respect to quarantine and the medical inspection of aliens along the United States-Mexican border, the medical officer in charge of this station has made several trips to various places along the border. Under his supervision the methods now being used at El Paso are being inaugurated at the other border stations.

Rio Grande and Roma, Tex.—Acting Asst. Surg. G. W. Edgerton in charge.

On June 1, 1925, the disinfecting building at Roma, consisting of two office rooms, two bath rooms, and one sterilizer room, was occupied. During the months of April, May, and June, an epidemic of smallpox developed in Monterey, Nuevo Leon, Mexico, and gradually extended nearer the border. Measures were instituted to prevent its spread to the United States. Vaccine virus and all possible assistance were furnished to the health officers of Camargo and Mier, the Mexican towns opposite Rio Grande and Roma, respectively. Over 500 persons were vaccinated by health officers in Mexico. No cases of smallpox came to quarantine.

Sixteen cases of typhus were reported in Hidalgo and Starr Counties.

Most excellent cooperation was extended to this office by Maj. F. Gardner and Capt. K. Brown, medical officers of the Army stationed at Fort Ringgold, Tex.

TRANSACTIONS AT INSULAR QUARANTINE STATIONS

Summary of transactions at insular stations for fiscal year ended June 30, 1925

Stations	Vessels inspected	Vessels fumigated	Passengers and crews inspected	Bills of health issued
Aguadilla, P. R.[1]	6	1	50	49
Ahukini, Hawaii	1	0	19	0
Arecibo, P. R.[1]	0	0	0	36
Arroyo, P. R.[1]	3	0	56	41
Cavite, P. I	28	0	4, 209	----------
Cebu, P. I	70	78	4, 459	----------
Central Aguirre, P. R.[1]	0	0	0	31
Christiansted, Virgin Islands [2]	6	0	84	0
Fajardo, P. R.[1]	64	0	360	254
Frederiksted, Virgin Islands [2]	17	0	1, 807	0
Guanica, P. R.[1]	155	3	9, 744	47
Hilo, Hawaii	39	4	4, 262	0
Honolulu, Hawaii	593	35	153, 589	0
Humacao, P. R.[1]	25	0	204	46
Iloilo, P. I	70	85	3, 583	0
Jolo, P. I	43	0	4, 289	0
Kahului, Hawaii	10	0	303	0
Koloa, Hawaii	6	0	143	0
Lahaina, Hawaii	3	0	84	0
Mahukona, Hawaii	1	0	26	0
Manila, P. I	823	236	119, 356	0
Mayaguez, P. R.[1]	56	3	1, 394	78
Olongapo, P. I	19	0	1, 692	0
Ponce, P. R.[1]	132	3	2, 361	95
St. Thomas, Virgin Islands [2]	282	26	14, 253	517
San Juan, P. R	364	60	39, 468	713
Zamboanga, P. I	51	0	3, 906	0
Ports in Philippine Islands	0	0	0	858
Total	2, 867	534	369, 701	2, 765

[1] Subports of Porto Rico.

[2] Virgin Islands ports.

REPORTS FROM INSULAR QUARANTINE STATIONS

OPERATIONS OF THE SERVICE IN HAWAII

Surg. E. A. Sweet, chief quarantine officer. Post-office and telegraphic address, Honolulu, Hawaii.

Only one quarantine station, that at Honolulu, is maintained in the Hawaiian Islands, but vessels are inspected at the subports of Hilo, Mahukona, Koloa, Ahukini, Lahaina, and Kahului.

The fiscal year has been the most uneventful, from the quarantine standpoint, in the past decade. Health conditions on incoming vessels have been generally excellent, with few suspicious cases of illness, and an almost total absence of the quarantinable diseases. The only quarantinable infections noted were two cases of leprosy, one of which was diagnosed previous to embarkation. In the other case, a patient who gave himself up voluntarily upon his arrival at Honolulu, the diagnosis was difficult, as the atypical lesions were suggestive of other conditions. Scrapings from the nose and snips from the skin were repeatedly negative. Ultimately, biospy showed lepra bacilli. The patient was transferred to Carville, La.

SMALLPOX VACCINATION

The enforcement of the territorial board of health regulations, referred to in the last annual report, requiring the vaccination of passengers arriving from Pacific coast ports, has been continued. When these regulations were put into effect, it was expected that they could be withdrawn within a few months. However, the smallpox situation in California, while showing signs of improvement, has been such that the territorial board of health has not felt warranted in lifting the restrictions imposed. The sharp outbreak of smallpox at Vancouver, where 302 cases occurred between January 4 and April 5, and the development of cases at San Francisco showing a mortality of 8 per cent, led the authorities to continue the restrictions throughout the year.

During the fiscal year 1924, nine cases of smallpox were detected at quarantine, and in addition three persons passed through quarantine in the incubative stage of the disease, making 12 cases to be accounted for. This year not a single case of smallpox has been observed, and no cases have developed in passengers subsequent to arrival; in fact, there is no record, with one exception, of the occurrence of smallpox on any trans-Pacific vessel destined for this port. The exception referred to was on the steamship *Empress of France*, engaged in an around-the-world cruise. In spite of the fact that this office recommended that the personnel of this vessel be vaccinated at the port of embarkation, or at least prior to arrival in India and China, no action was taken. Of the 324 passengers, seven had never been immunized. One of the seven, a young woman traveling with her parents, came down with hemorrhagic smallpox at Singapore, and died on the fourth day. This death was wholly avoidable.

Further comparison of the figures for the two years is illuminating. During the year 1924, 816 smallpox contacts underwent detention. During the present fiscal year it has been necessary to detain but nine persons. All of the nine, four of whom were members of one family, had objected to vaccination at the port of embarkation, preferring to remain in quarantine to complete 14 days as provided for by the territorial regulations. The total number of days detention for the 816 contacts last year was 3,264, as contrasted with 63 for the nine persons under the present system. The monetary saving effected can be easily estimated.

Not only have no cases of smallpox been detected at quarantine, but none has occurred in the Hawaiian Islands. While San Diego, Los Angeles, San Francisco, and Vancouver have each had several hundred cases during the year, and the disease has been present in practically all West Coast cities, Honolulu has remained free from the infection. In large part this is attributed to the reasonable precautionary measures imposed.

PLAGUE PRECAUTIONARY MEASURES

The recrudescence of plague in New Orleans, and its occurrence in Oakland and Los Angeles, with which ports Honolulu is in direct connection, has called for increased vigilance at this port. The usual precautionary measures, such as the breasting off of steamers at night and the rat-guarding of lines, have been exercised. Inasmuch as practically all trans-Pacific vessels arriving at this port are in cargo and can not be conveniently fumigated, vessels of this class are usually treated at mainland stations.

The fact that plague has not existed in Honolulu since 1910 is worthy of attention. Geographically the city is the hub of a wheel, of which the rim is represented by South American and Australian ports on the lower border, while further north United States and Asiatic coast cities complete the circumference, With practically all of the plague ports in these countries, Honolulu has frequent and direct connection. Moreover, rodent infestation, particularly with *Mus rattus* and *alexandrinus*, in the city and environs, is heavy. Only two of the wharves, of recent construction, are rat proof, and other conditions are such as seem to predispose to plague infection. Yet in spite of these facts, no case of plague is of record for 15 years, and no known case of rodent infection has occurred during the same period.

To what can this freedom be attributed? The systematic fumigation of all trans-Pacific vessels at San Francisco, with the resulting maintenance of the rat population at a minimum, and the supervision given to shipping by service officers abroad, have undoubtedly been factors of importance. A considerable percentage of incoming vessels remain at Honolulu for brief periods only, principally in the daylight hours, and this has probably also served to lessen the hazard. Precautionary measures have been rigidly enforced, and vessels have been inspected daily to determine that requirements were being properly met. Weighing these various factors, and giving each its worth, so far as practicable, it appears that there remains a considerable balance in favor of the introduction of plague.

That plague will again occur in the Hawaiian Islands in the near future is possible, if not highly probable. Ordinary quarantine measures obviously can not suffice to prevent the importation of such an evasive infection; and if community safety is to be assured, additional measures must be adopted. The Honolulu waterfront, particularly the section contiguous to the piers, should be made rat proof, so as to reduce the danger of plague-infected rodents gaining access to the city, and new buildings in the business district should be of approved rat-proof design.

The territorial board of health, in cooperation with this service, placed on duty an additional trapper following the reporting of plague in Los Angeles, so that five are now employed. During the year, 12,272 rodents were obtained, classified as follows: *Mus alexandrinus*, 2,432; *Mus rattus*, 1,755; *Mus norvegicus*, 2,190; *Mus musculus*, 5,357; mongoose, 100; unclassified, 438. Examination showed none to be suspicious for plague.

The eradicative work on the island of Hawaii has been continued by the several sugar plantations in cooperation with the territorial board of health. During the fiscal year 14 plague-infected rodents have been trapped and two human cases of plague have occurred. In general the status of this limited plague focus remains the same as for the past several years.

FUMIGATION OF VESSELS

A total of 39 vessels were fumigated during the year, 35 at Honolulu and 4 at Hilo. Two of the fumigations, followed by disinfections, were of cabins occupied by lepers. On the 17 vessels treated for rats, 667 rodents were obtained. Three of the fumigations were for mosquitoes on vessels engaged in the South American trade, although careful search upon arrival failed to show insects. Since the importation of a yellow fever case in 1910, with the development of a secondary infection, this procedure has been the rule with all untreated vessels arriving from South American or west Mexican ports. The necessity for action of this character is becoming less each year.

At the request of the Navy Department, 16 vessels were fumigated for the distruction of vermin. In addition, the house of an officer at Pearl Harbor, infested with wood ticks, was successfully treated.

Summary of transactions, Hawaiian Islands

	Honolulu	Hilo	Mahukona	Kahului	Lahaina	Koloa	Ahukini
Vessels arriving	593	39	1	10	3	6	1
Vessels inspected and passed	569	38	1	10	3	6	1
Vessels boarded and passed	22						
Vessels fumigated and passed	2	1					
Crew inspected	68,073	3,712	26	299	84	143	19
Passengers inspected	85,516	550		4			

OPERATIONS OF THE SERVICE IN THE PHILIPPINE ISLANDS

Surg. H. F. Smith, chief quarantine officer. Post-office address, Box 424, Manila, P. I.; telegraphic address, Quarantine, Manila.

Officers of the United States Public Health Service are stationed at the ports of entry at Cebu, Iloilo, Jolo, Manila, and Zamboanga. At the United States naval stations at Cavite and Olongapo, medical officers of the Navy act as quarantine officers.

Two detention stations are maintained. The one for the northern part of the archipelago is located on Mariveles Bay, 30 miles from Manila. The detention station for the southern part of the archipelago is located on the Island of Kawit, 2½ miles from the city of Cebu.

The personnel employed in the quarantine service in the Philippines consisted of 4 commissioned medical officers, 2 full-time acting assistant surgeons, 4 medical officers on part-time basis only, 1 pharmacist, and 77 other employees.

The Bureau of Quarantine Service of the Philippine Islands is administered by the United States Public Health Service under the authority of the administrative code. The policy of securing the greatest possible protection without unduly interfering with commerce was continued.

The various functions of the service, including the inspection of incoming vessels, the inspection of outgoing vessels, interisland quarantine, plague-preventive measures, medical inspection of aliens, maintenance and operation of quarantine stations, and the physical examination of applicants for marine licenses were carried on with satisfactory cooperation on the part of steamship agents and owners, nor was antagonism encountered on the part of the general public. This cooperation has increased the confidence of the public and has led to an increased esteem for the quarantine service and its efforts. The geographical location of the Philippine Islands places them in a dangerous position relative to the introduction of quarantinable diseases. The world's greatest centers for these diseases are within a few days' journey, making it possible for a person infected with any one of the quarantinable diseases to arrive in the Philippine Islands before the period of incubation has been completed and the illness has become apparent.

During the year under report, one or another of the near-by districts was infected with a more or less severe type of plague, cholera, or smallpox. It is satisfactory to report that the China coast, particularly the ports of Hongkong, Shanghai, and Amoy, did not have plague this year in dangerous epidemic proportions. It is believed, however, that plague was present in the Orient almost continuously, particularly in rodents, and such occurrence was continuously a menace to the Philippines. The incidence of cholera was also very low during the year. Leprosy is always present, but that disease does not constitute the problem presented by most other quarantinable diseases. Smallpox was widespread and persistent in both Hongkong and Amoy, and, as usual, was present at nearly all of the other oriental ports.

MEASURES AGAINST SMALLPOX

The report for last year stated that stringent measures had to be taken on account of the fact that cases of smallpox were being brought into the Philippine Islands by passengers arriving from the China coast, the disease developing after the passenger's arrival. It was necessary at that time to require detention for the usual period at Mariveles. This proved trying to the public and expensive to the service. On November 4, 1924, a steamship arrived from Amoy and some time thereafter a case of smallpox was discovered ashore in the person of one of the passengers. During March another case developed under similar circumstances, and in April three cases were discovered in Manila among persons who had recently arrived from the China coast. In all of these cases it appeared that the infected person had been in Manila at least nine days before the appearance of the eruption. In view of the fact that no other cases of smallpox were occurring in Manila, the quarantine service was confronted with the necessity of preventing the introduction of smallpox from abroad. It was believed to be unwise again to quarantine all persons arriving at Mariveles and that some other plan should be devised. Consequently, arrangements were made with the Public Health Service officers on duty at Hongkong and Amoy to require all steerage passengers to submit to vaccination and inspection at the port of departure.

A plan was adopted for the passenger, when applying to purchase a ticket, to be furnished a card by the steamship company upon which would appear his name, photograph, port of departure, and last permanent residence, as well as the stamp of the steamship company. This card he is instructed to take in person to the United States Public Health Service officer, who sees that the passenger is bathed, vaccinated, and identified with the photograph on the card and that his effects are disinfected. Immediately following the vaccination, a thumb print is taken for the purpose of future identification. Each succeeding day, at a designated hour, the passenger reports to the medical officer for inspection, at which time a notation is made on the card as to the condition of the vaccination. The steamship company will not furnish a ticket to the passenger until the Public Health Service officer rates the passenger as an immune and has placed his stamp in the appropriate place on the card, initialing the stamp in ink. After the medical officer is satisfied that the passenger is immune and marks the card accordingly, and not until then, the shipping company will furnish the passenger with transportation and he may leave on the first ship sailing for the Philippines. The passenger is also inspected immediately prior to sailing. On arrival at a Philippine port, the boarding officer inspects the individual in the usual manner and checks and stamps his card. In case of doubt as to identity, a thumb print is taken and compared with that on his card.

QUARANTINABLE DISEASES IN THE PHILIPPINE ISLANDS

The Philippine Islands remained practically free from the quarantinable diseases, and the principal ports of entry should be considered as clean. They are certainly not a menace to vessels proceeding to the continental United States, or to other ports in the world.

No case of plague or typhus fever was reported. Leprosy is present, but the activities of the insular government have reduced the number of unsegregated cases. In the colony at Culion and the leper hospital at Manila, there are segregated more than 5,000 cases. Sporadic cases of cholera continued to occur in the islands during the year. During June, 1925, three cases of cholera, with no deaths, were reported in the city of Manila. Among the emigrants for the Hawaiian Islands, there is always a small percentage of cholera carriers. These emigrants are thoroughly examined and are not allowed to embark if suspected of being infected with communicable disease.

INCOMING QUARANTINE

Vessels arriving from foreign ports were inspected at all of the ports of entry from sunrise to sunset. It was not considered necessary to inspect vessels from other ports in the Philippine Islands.

Interisland vessels are required to be fumigated once every six months.

The following tables show some of the quarantine transactions at the several ports of entry:

Incoming quarantine

	Manila	Iloilo	Cebu	Cavite	Olongapo	Jolo	Zamboanga	Total
Vessels inspected from United States ports	221	4	10	7	0	0	11	253
Vessels inspected from foreign ports	602	63	60	20	19	43	39	846
Vessels disinfected and fumigated	225	105	78	0	0	0	0	408
Crew inspected on arriving vessels	78, 490	3, 531	4, 247	3, 419	1, 552	2, 861	3, 139	97, 239
Cabin passengers inspected on arriving vessels	17, 090	30	40	168	140	170	352	17, 990
Steerage passengers inspected on arriving vessels	23, 776	22	172	623	0	1, 258	415	26, 266
Persons vaccinated at quarantine	359	0	0	0	0	0	0	359
Applicants for marine licenses examined	429	111	161	0	0	0	0	701

Outgoing quarantine

Bills of health issued	858
Vessels inspected	108
Vessels fumigated	16
Crew inspected	5, 326
Passengers inspected	793
Pieces of cargo inspected and passed	43, 311, 860

PLAGUE PREVENTIVE MEASURES

Plague is constantly present in most Asiatic ports and it is necessary to be constantly on the alert against the reintroduction of this disease into the Philippine Islands. The principal measures enforced consisted in requiring the breasting off of all vessels from the wharves and quays at least 4 feet; the fumigation of vessels for the destruction of rodents; the inspection of vessels and cargo while the vessels were being unloaded, and the use of rat guards on all lines leading to wharves and lighters.

During outbreaks of plague at near-by foreign ports, vessels from such ports were fumigated every trip. When an outbreak abated, the fumigation period was extended to three months. All vessels calling at Philippine ports from any foreign port were required to be fumigated not less than once every six months, and vessels plying regularly between oriental ports and the Philippines were fumigated every three months.

An appropriation was requested for the construction of a shed which could be used for the fumigation of lighters and similar small craft while loaded, thereby insuring the fumigation of cargo before its storage in the warehouses on the Pasig River. No appropriation was obtained for this purpose.

Funds for ratproofing the riprap between the Government piers were requested, but no progress has been made in that direction. At Cebu, Jolo, and Zamboanga clusters of piles were driven to fend off vessels from the quays.

All vessels which arrived at Philippine ports with quarantinable diseases on board were disinfected in the usual manner. The vessels which were used by the Philippine Health Service in collecting lepers from the various parts of the Philippine archipelago and transporting them to the Culion leper colony were disinfected upon the completion of each collecting trip.

Empty vessels were fumigated with sulphur. No vessels were partially fumigated, but in each instance the engine room and superstructure were included. If a vessel contained cargo, cyanogen chloride gas was used. There was no accident to vessels or personnel in connection with fumigation.

The following are mentioned as examples of cooperation with other Government bureaus: Disinfection of vessels infected with cattle diseases; displaying typhon signals as warnings to shipping at quarantine stations; maintaining a lighthouse; disinfecting vessels engaged in transporting lepers to the leper colony; furnishing launch transportation for boarding and other purposes; making physical examinations of employees and rendering first aid and treatment in emergencies; vaccination of Government employees; grading examination papers; furnishing quarters temporarily at the quarantine stations.

A new boiler was obtained for the boarding launch *Zapote* at Manila. The launch at the port of Iloilo became unserviceable and was condemned by the inspectors of hulls and boilers. This launch has not yet been replaced.

Following each fumigation of a vessel a careful search for killed rodents was made. Since many vessels left port almost immediately after fumigation, the search was often impossible or incomplete, so that the following table does not represent the total number of rats killed.

	Rats found after fumigation	Rats examined
Manila	776	776
Iloilo	1,015	0
Cebu	453	453
Total	2,244	1,229

All of the rats recovered at Manila and Cebu were examined, but no plague-infected rats were detected. In Manila the examinations were made at the laboratory of the Bureau of Science, and in Cebu at the service laboratory.

Several vessels arrived at quarantine without consular bills of health from European ports, the reason given being that the consuls had refused to issue the bills of health because of the fact that the vessels had alcoholic beverages on board. In each instance the failure to produce a bill of health was reported to the collector of customs in accordance with the provisions of paragraph 57 of the quarantine regulations. Inasmuch as the reason in each instance for withholding the bill of health was entirely separate and distinct from the quarantine laws and regulations, the collector of customs in each instance imposed a nominal fine of $5 or $10 and released the vessel. The subversion of the bill of health from its legitimate purpose, of giving information relative to the prevalence of quarantine diseases at the port of departure and the sanitary status of the vessel, its personnel and passengers, has caused considerable embarrassment to the conduct of the quarantine service at this port.

The cabin-passenger barracks at the Mariveles quarantine station was inspected and officially condemned by the insular government. Demolition of this building is now going forward.

AMOY, CHINA

Acting Asst. Surg. E. J. Strick in charge.

All passengers for the Philippines were vaccinated for smallpox. At first this vaccination was done at the time of sailing, but at the beginning of 1925, with the advice and cooperation of the chief quarantine officer of the Philippine Islands, a new system was instituted. The steamship companies supply the prospective passengers with cards to which the passenger's photograph is attached, and on which his thumb print is taken at the time of vaccination. The passenger comes back for daily inspection until his immunity is established and he is then released, The steamship companies are warned not to allow any passengers on board unless they have been released by this office.

There has been an unusually large amount of smallpox in Amoy and vicinity during the last year. Except for this, health conditions have been better than usual.

OPERATIONS OF THE SERVICE IN PORTO RICO

Surg. D. E. Robinson in charge. Post-office and telegraphic address, San Juan, P. R.

San Juan is the headquarters for quarantine operations in Porto Rico, but service officers are also stationed at Mayaguez, Aguadilla, Arecibo, Ensenada, Ponce, Central Aguirre, Arroyo, Humacao, and Fajardo.

The personnel consisted of 1 commissioned medical officer, 2 full-time acting assistant surgeons, 9 part-time acting assistant surgeons, 1 clerk, and 30 attendants.

No cases of quarantinable diseases arrived at San Juan or the subports. Special precautions were taken against plague, but no plague-infected rats were found either by officers of the service or by the insular department of health in their campaign against the wharf rats.

Summary of transactions at Porto Rican ports

San Juan		*Arecibo*	
Vessels inspected	364	Vessels inspected	0
Vessels fumigated	60	Vessels fumigated	0
Crew inspected	27, 509	Crew inspected	0
Passengers inspected	11, 959	Passengers inspected	0
Bills of health issued	713	Bills of health issued	36
Aguadilla		*Arroyo*	
Vessels inspected	6	Vessels inspected	3
Vessels fumigated	1	Vessels fumigated	0
Crew inspected	50	Crew inspected	54
Passengers inspected	0	Passengers inspected	2
Bills of health issued	49	Bills of health issued	41

Central Aguirre

Vessels inspected	0
Vessels fumigated	0
Crews inspected	0
Passengers inspected	0
Bills of health issued	31

Fajardo

Vessels inspected	64
Vessels fumigated	0
Crew inspected	335
Passengers inspected	25
Bills of health issued	254

Guanica

Vessels inspected	155
Vessels fumigated	3
Crew inspected	9, 096
Passengers inspected	648
Bills of health issued	47

Humacao

Vessels inspected	25
Vessels fumigated	0
Crew inspected	203
Pasengers inspected	1
Bills of health issued	46

Mayaguez

Vessels inspected	56
Vessels fumigated	3
Crew inspected	1, 170
Passengers inspected	224
Bills of health issued	78

Ponce

Vessels inspected	132
Vessels fumigated	3
Crew inspected	1, 603
Passengers inspected	758
Bills of health issued	95

The usual repairs to the buildings and floating equipment were made and an excellent small marine way was constructed at the cost of materials only, the station employees furnishing all the labor. The launches can now be cleaned, repaired, and painted with the minimum expense and trouble. The Customs Service and Immigration Service have also made use of the service marine way.

Bills rendered for quarantine services at maritime stations during the fiscal year ended June 30, 1925

Station	Inspections of vessels	Fumigation of vessels	Subsistence furnished to ships	Miscellaneous quarantine services	Total
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Atchafalaya (Morgan City)	0	0	0	0	0
Baltimore	7, 535. 00	28, 750. 85	0	417. 00	36, 702. 85
Beaufort	6. 00	0	0	0	6. 00
Biscayne Bay	3, 107. 00	0	0	0	3, 107. 00
Boca Grande	285. 00	0	0	0	285. 00
Boston	11, 170. 00	17, 167. 11	0	0	28, 337. 11
Brunswick	200. 00	64. 70	0	0	264. 70
Cape Fear	493. 00	1, 138. 80	0	0	1, 631. 80
Cedar Key	0	0	0	0	0
Charleston	1, 948. 00	1, 231. 05	0	0	3, 179. 05
Columbia River	1, 570. 60	3, 816. 16	0	1. 00	5, 387. 16
Coos Bay	290. 00	28. 00	0	0	318. 00
Cumberland Sound	100. 00	119. 97	0	0	219. 97
Delaware Breakwater	34. 50	0	0	0	34. 50
Eastport	0	0	0	0	0
Eureka	80. 00	0	0	0	80. 00
Fort Bragg	10. 00	0	0	0	10. 00
Fort Monroe	8, 355. 00	18, 216. 13	0	171. 00	26, 742. 13
Freeport	0	0	0	0	0
Galveston	10, 654. 75	14, 527. 23	0	0	25, 181. 98
Georgetown	60. 00	0	0	0	60. 00
Gloucester	0	0	0	0	0
Gulf	452. 00	890. 54	0	0	1, 342. 54
Hawaii	9, 399. 00	551. 53	287. 50	40. 50	10, 278. 53
Hoquiam (Aberdeen)	690. 00	0	0	0	690. 00
Ketchikan	0	0	0	0	0
Key West	3, 185. 00	124. 59	0	0	3, 309. 59
Marcus Hook (Philadelphia)	11, 106. 00	29, 804. 19	0	1. 25	40, 911. 44
Mobile	3, 383. 00	9, 807. 98	0	0	13, 190. 98
Monterey	0	0	0	0	0
New Bedford	0	0	0	0	0
New Orleans	15, 945. 00	14, 578. 88	146. 00	1, 429. 55	32, 099. 43
Newport	95. 00	0	0	0	95. 00
New York	45, 623. 00	168, 902. 36	616. 51	23, 459. 50	238, 601. 37
Ogdensburg	0	0	0	0	0

Bills rendered for quarantine services at maritime stations during the fiscal year ended June 30, 1925—Continued

Station	Inspections of vessels	Fumigation of vessels	Subsistence furnished to ships	Miscellaneous quarantine services	Total
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Pascagoula	54.00	43.42	0	0	97.42
Pensacola	1,311.00	3,398.03	0	0	4,709.03
Perth Amboy	420.00	733.56	0	0	1,153.56
Port Angeles	0	11.12	0	0	11.12
Port Aransas	0	0	0	0	0
Port San Luis (Port Harford)	180.00	0	0	0	180.00
Portland	1,560.00	2,740.51	0	0	4,300.51
Port Townsend	3,853.00	1,627.71	227.00	9.25	5,716.96
Porto Rico	6,662.00	502.32	0	5.00	7,169.32
Providence	1,287.00	210.50	0	0	1,497.50
Sabine	4,252.00	7,422.72	0	0	11,674.72
St. Andrews	162.00	351.00	0	0	513.00
St. George Sound	0	0	0	0	0
St. Johns River	1,066.00	1,155.88	0	0	2,221.88
St. Joseph	0	0	0	0	0
San Diego	2,654.00	104.69	0	0	2,758.69
San Francisco	6,507.00	53,153.17	0	0	59,660.17
San Pedro	11,376.00	10,980.44	0	40.25	22,396.69
Savannah	1,495.00	1,630.06	0	0	3,125.06
Seattle	0	13,679.43	0	0	13,679.43
South Bend	70.00	6.00	0	0	76.00
Tampa Bay	2,682.00	3,070.24	0	0	5,752.24
Vineyard Haven	4.00	0	0	0	4.00
Virgin Islands	2,735.00	127.78	0	58.25	2,921.03
Washington, N. C	0	0	0	0	0
Total	184,106.25	410,668.65	1,277.01	25,632.55	621,684.46

TRANSACTIONS AT FOREIGN PORTS

Summary of transactions at foreign ports

Port	Vessels inspected	Vessels fumigated	Passengers and crews inspected	Bills of health countersigned
Amoy, China	77	0	17,827	77
Guantanamo Bay, Cuba	0	0	0	184
Guayaquil, Ecuador	144	0	14,064	195
Habana, Cuba	2,072	135	230,872	2,072
Hongkong, China	142	47	112,307	607
Progreso, Mexico	249	53	11,428	195
Puerto Mexico, Mexico	7	7	148	81
Shanghai, China	429	125	5,084	584
Tampico, Mexico	1,826	646	30,343	2,323
Tuxpam and Port Lobos, Mexico	136	4	5,165	136
Vera Cruz, Mexico	409	199	21,231	409
Yokohama, Japan	311	70	62,065	649
Total	5,802	1,286	510,534	7,512
European Ports	1,410	905	310,485	6,931
Total	7,212	2,191	821,019	14,443

REPORTS FROM FOREIGN PORTS

SERVICE OPERATIONS IN EUROPE

Paris, France.—Surg. W. W. King in charge.

ORGANIZATION

The service organization in Europe, consisting of a central supervisory office at Paris and medical officers of the Public Health Service attached to American consulates at various ports, has remained unchanged.

By the appointment of a medical officer at Glasgow, August 1, 1924, the Service operations were carried out at every port in Europe from which an important number of passengers embark for the United States. On the other hand, these operations were discontinued at certain ports.

At Messina, Italy, the local representative of the Service died August 15, 1924. The conditions at that port had materially changed during recent years; it had ceased to be a port for the embarkation of steerage passengers, and the work of that officer consisted in the sanitary inspection of, and the issuance of bills of health to, vessels bound to United States ports, and miscellaneous duties. In view of the improved sanitary conditions in the Near East, it was decided not to appoint another officer in his place.

The Service operations were discontinued also at Constantinople, Turkey, June 1, 1925, due chiefly to the comparatively small number of passengers embarking at that port, and in view of the improvement in the type of passenger. Sanitary conditions in and about Constantinople have materially improved. At the close of the fiscal year service operations were discontinued at the following ports: Bergen, Oslo, and Stavanger, Norway; Gothenburg, Sweden; Copenhagen, Denmark; Boulogne, France; and Palermo, Italy.

INSPECTION, ETC., OF PASSENGERS

The activities of the service in Europe have continued along the same lines as in previous years, attention being paid principally to the inspection of passengers of the third class and those of the same type traveling second class. This inspection is limited strictly to matters comprehended under the quarantine laws and regulations, and deals chiefly with vaccination against smallpox, the presence of vermin on the persons or in the baggage, detection of epidemic communicable diseases, and the measures to be taken to embark the passengers in proper sanitary condition.

There has been a constant effort to improve the efficiency of the procedures, with consequent better results. Facilities for the sanitary treatment and housing of passengers have been further improved at several ports, and administration at the ports has been made more systematic. As the majority of passengers enter the United States through the port of New York, closer cooperation has been established whereby information concerning verminous passengers found during the New York quarantine inspection is forwarded to the medical officers in Europe through the Paris office. The information given enables those officers to check up the cases and procedures, and the good results have been shown by a diminution of such cases.

The operation of the new restrictive immigration law has been beneficial in regulating the flow of passengers to the United States and facilitating the work of the service officers in Europe. There have not been the periods of great activity followed by inactivity which occurred during previous years, at times excessively taxing the sanitary facilities at the ports. A new form of weekly report from the officers at the ports to the central officer at Paris giving more complete and uniform data has been adopted.

The officers at the ports have continued to note the improvement in the sanitary state of the passengers of the third class or steerage type, mentioned in the report of the last fiscal year and attributed in large measure to the insistence on the part of the Public Health Service officers that passengers shall be in good sanitary condition on embarkation at European ports. The effect produced upon prospective passengers, steamship agents, and even public authorities has had its influence in improving not only the sanitary condition in which the passenger presents himself for embarkation, but also in helping to stimulate improvements in sanitation and public health in the countries from which the passenger came, so that early in the fiscal year it was possible to issue amended instructions to the medical officers at the ports lessening the quarantine measures against passengers from some countries and lessening those against certain types of passengers from other places. There has been no cause to regret this action, which has been instrumental in decreasing irritation and complaint.

SANITARY CONDITIONS IN EUROPE

The general improvement in public health and sanitary conditions mentioned in the report of the previous year has continued. The reports of vital statistics received by the Paris office are more adequate, and are being received from more countries than formerly. In considering the health conditions in Europe as affecting the operations of the Public Health Service it is necessary to include the countries of northern Africa and western Asia bordering on the Mediterranean Sea, because the routes of passengers traveling from these countries to the United States are generally by way of European ports.

Typhus fever.—The prevalence of typhus fever has been the lowest of any year since the World War, but this disease still occurs frequently in Russia and Poland, and less commonly in the adjoining countries. Reports are received from time to time of typhus in northern Africa and western Asia, where the disease is endemic. Endemic foci exist also in Ireland, causing occasional small outbreaks but no serious spread. A sharp outbreak occurred at St. Helena, England, a town not far from Liverpool, but it was promptly suppressed by energetic measures. The cases were attributed to infection from Ireland.

Smallpox.—Smallpox has been unusually prevalent in England, where it has occurred in numerous localities. In general, the type is mild, which adds to the difficulty in enforcing vaccination and other preventive measures. Some localities have shown the severe types. A considerable number of cases have occurred in Spain, where the type of the disease generally has been severe. Smaller outbreaks have occurred in some countries, notably in Switzerland and Denmark, and occasional cases have been reported in other countries. The disease is still fairly prevalent in eastern Europe and western Asia. Outbreaks have also been reported in Tunisia and Algeria.

Plague.—Cases of plague have occurred in small numbers in several European countries, but in general the situation is satisfactory. The disease, continues to be endemic in the Canary and Madeira Islands, as evidenced by the report of an occasional case. Three cases were reported at Naples, Italy, attributed to an importation by grain ships from the Argentine. Active measures prevented a further spread. Cases were reported from Greece and the Grecian Islands;

also from Constantinople and Smyrna. There has been a focus of the disease in the Kalmuk region of southeastern Russia, where investigation showed the infection prevalent among the rodents. The disease is endemic in Egypt, but less prevalent than formerly. Algeria has reported some cases.

The periodic fumigation of vessels bound to United States ports has continued to be an important feature of the Public Health Service operations in Europe. Fumigations of vessels at European ports, in compliance with the United States Quarantine Regulations, and properly certified by Public Health Service officers, are accepted by quarantine officers at United States ports. In this way, the cost of fumigation in time and money is reduced and the burden of work at United States quarantine stations is greatly relieved. This service is being more and more appreciated by shipping interests.

Cholera.—No cases of cholera have been reported as occurring in Europe or in Mediterranean countries.

Diseases occurring among passengers.—The following diseases have been reported by medical officers as occurring among passengers presenting themselves for embarkation to the United States: Bremen—varicella 4, whooping cough 2; Cobh—undetermined fever 1; Southampton—measles 1. These passengers and the members of their families were not permitted to embark until recovered.

The other rejections noted in the statistical table were on account of insanitary conditions, chiefly the presence of vermin on the passenger or some member of the family. It should be remarked in reference to the comparatively small number of rejections, that every effort is made to prevent this possibility, and passengers to whom the quarantine measures apply, are subjected to these measures before being finally inspected for embarkation. Only those found to be in improper state of final inspection and are thus rejected for that sailing are noted as rejected.

MISCELLANEOUS DUTIES OF OFFICERS IN EUROPE

The collection of information in regard to public health conditions and sanitary measures is an important duty, but one often difficult for officers to carry out because of the reluctance of local health officials to give information which may be considered adverse to their interests or the interests of their ports.

Medical officers are called upon by consuls to examine sick American seamen, to make physical examinations of war veterans, pensioners, and seamen, and to advise consuls in medical questions which may arise. These duties have been particularly heavy at Genoa and Naples, Italy.

INTERNATIONAL MEDICAL CONFERENCES, ETC.

Surg. W. W. King was detailed as the representative of the United States, in the capacity of "observer" on the international commission, under the terms of article 116 of the treaty of Lausanne, for the liquidation of the affairs of the former Superior Sanitary Council of Constantinople, an international body whose functions ceased with the ratification of the treaty of Lausanne. This commission held its first meeting at Constantinople on February 19, 1925, and has not yet completed its work.

Surgeon King also represented the Public Health Service at the Third International Congress of Military Medicine and Pharmacy, held at Paris, France, April 20,25– 1925.

Surg. S. L. Christian was detailed to represent the Public Health Service at the Congress of the Royal Sanitary Institute, held at Liverpool, England, July 14–19, 1924; and at the Third International Congress of Military Medicine and Pharmacy, held at Paris, France, April 20–25, 1925. Surgeon Christian was also detailed to participate in the interchange of sanitary officers which began at London, England, February 9, 1925, and ended at Geneva, Switzerland, March 28, 1925.

Surg. W. L. Treadway was detailed to represent the Public Health Service at the International Neurological Congress held at Paris, France, May 25–28, 1925.

Surg. P. M. Stewart was detailed to represent the United States at the Second National Congress of Medical Sciences held at Seville, Spain, October 15–20, 1924.

Report of service operations in Europe, fiscal year, 1925

Place	Number of passengers inspected	Number of crew inspected	Number of passengers vaccinated	Number of crew vaccinated	Number of passengers deloused	Number of crew deloused	Number of passengers detained	Number of passengers rejected
Antwerp, Belgium	4,944		3,935		1,744		1,695	3
Barcelona, Spain	284	7	74		3			
Bergen, Norway [2]	921		778		2			
Bordeaux, France								
Boulogne, France [2]	336		292		33		3	2
Bremen, Germany	32,207		16,807		5,346		3,595	119
Cherbourg, France	34,537		19,364		12,075		7,520	
Cobh, Irish Free State	22,536		22,280		12,736			2
Constantinople, Turkey [3]	507	3,055	465	3	457			
Copenhagen, Denmark	4,185		3,273		228		92	
Danzig, Free City	13,945		12,969		12,876			15
Genoa, Italy	7,819	82	5,737		746			
Glasgow, Scotland [4]	12,776	5,098	2,083	101	155			2
Gothenburg, Sweden [2]	7,183		6,334		139		52	
Hamburg, Germany	36,243		18,243		3,429		2,239	
Havre, France	3,524		3,523		1,671		1,080	1
Libau, Latvia	4,764	61	3,259	21	4,393	26		
Liverpool, England	33,641		12,176		2,453			6
London, England	348		135		30		30	
Londonderry, Ireland	4,757		3,232		678			2
Marseille, France	302	923	279		128			
Messina, Italy [5]		245						
Naples, Italy	24,056	9,482	24,056		24,056			
Oslo, Norway [2]	3,503		3,433		84			
Palermo, Italy [2]	3,132	4,332	3,132	26	3,132			2
Patras, Greece	503	3,858	503	166	503	61	1	5
Piraeus, Greece	2,733	2,310	2,618	857	2,372		34	
Rotterdam, Netherlands	6,805		3,573		2,589		1,812	1
Southampton, England	13,290		4,647		497			127
Stavanger, Norway [2]	1,251		1,243		2			1
Total	281,032	29,453	178,443	1,174	92,557	87	18,153	288

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[1] Reasons for rejections: Vermin, 154; varicella, 4; whooping cough, 2; measles, 1; fever, 1; to complete observation period after delousing, 109; other members of families of detained persons, 18.

[2] Operations discontinued June 30, 1925.

[3] Operations discontinued May 31, 1925.

[4] Operations began Aug. 1, 1924.

[5] Operations discontinued Aug. 15, 1924.

Report of service operations in Europe, fiscal year, 1925—Continued

Place	Number of pieces of baggage disinfected	Number of pieces of baggage inspected without disinfection	Number of vessels fumigated	Number of bills of health countersigned	Number of vessels inspected	Number of medical examinations of service beneficiaries
Antwerp, Belgium	2,260	7,811	27	766	----------	3
Barcelona, Spain	207	33	45	154	158	----------
Bergen, Norway	----------	64	1	19	2	1
Bordeaux, France	----------	----------	3	----------	----------	----------
Boulogne, France	100	383	----------	41	----------	----------
Bremen, Germany	5,688	44,786	80	331	22	3
Cherbourg, France	18,814	2,202	----------	336	----------	----------
Cobh, Irish Free State	11,677	8,668	----------	176	144	----------
Constantinople, Turkey	437	140	----------	60	59	3
Copenhagen, Denmark	8,519	524	43	144	----------	12
Danzig, Free City	13,340	1,926	4	35	135	----------
Genoa, Italy	1,111	6,877	96	409	89	223
Glasgow, Scotland	----------	----------	34	265	84	7
Gothenburg, Sweden	153	7,448	4	[1] 80	11	3
Hamburg, Germany	5,860	61,443	200	728	250	----------
Havre, France	1,217	1,234	113	71	2	----------
Libau, Latvia	6,795	1,146	----------	----------	42	----------
Liverpool, England	2,671	57,094	62	735	----------	----------
London, England	54	255	61	589	----------	16
Londonderry, Ireland	34	598	----------	58	----------	----------
Marseille, France	254	382	26	214	33	9
Messina, Italy	----------	----------	----------	7	8	4
Naples, Italy	20,947	20,954	9	266	170	253
Oslo, Norway	150	----------	----------	178	----------	2
Palermo, Italy	1,601	4,243	31	135	104	57
Patras, Greece	860	81	----------	41	40	----------
Piraeus, Greece	2,639	665	----------	54	48	27
Rotterdam, Netherlands	3,256	1,756	53	602	----------	----------
Southampton, England	669	148	13	420	9	1
Stavanger, Norway	2	----------	----------	17	----------	----------
Total	109,315	230,861	905	6,931	1,410	624

[1] Five bills of health not countersigned on account of noncompliance with the quarantine regulations.

GUAYAQUIL, ECUADOR

Acting Asst. Surg. Carlos V. Coello in charge.

Plague.—Ninety-four cases with 43 deaths—84 cases and 13 deaths less than during the previous year—were reported. The local health authorities enforce certain measures to control this disease. A radical change in the system of construction, eliminating the double walls, is strictly enforced. Most of the new houses are made of cement, with solid walls and without ceiling. Deratization is kept active. According to official sources of information, 239,619 rats were trapped during the fiscal year; 1.17 per cent of those examined were found to be infected with the plague bacillus.

Smallpox.—Six cases of smallpox, with no deaths, were reported. Passengers booked for ports in the Canal Zone or the United States are required, as usual, to show evidence of recent vaccination for smallpox. Four thousand eight hundred and fifty-two persons were vaccinated against smallpox by this office.

Tuberculosis.—Six hundred and sixty-six deaths were reported during the calendar year 1924 (an increase of 55 over the previous year).

Malaria.—Two hundred and sixty-seven deaths (129 less than in the previous year).

Grippe.—Seventy-six deaths.

Typhoid and paratyphoid fever.—Sixty-six deaths.
Icterohæmorrhagic fever.—Four deaths.
Lethargic encephalitis.—Three deaths.

GENERAL MORTALITY

The number of deaths during the calendar year 1924 was 4,461 and shows a small decrease of 13 against 1923 in which 4, 474 were reported, 40.67 per thousand.

QUARANTINE RESTRICTIONS

About the middle of May, rumors of the appearance of yellow fever in the north of Peru caused considerable alarm in circles especially concerned. Vessels from those ports were subjected to quarantine here and a representative of the Ecuadorian Public Health Service was sent to that zone to investigate conditions, with the aid and authorization of the Peruvian health officers. The suspicious cases were found to be malaria of virulent type.

HABANA, CUBA

Acting Asst. Surg. Richard Wilson in charge.

The work of this office, in brief, is as follows: (1) To issue bills of health, in cooperation with the consul general, to vessels going to the United States or its dependencies, either direct or via foreign ports, said bills of health to be delivered at the last moment after all the requirements have been complied with; (2) to make a weekly report of the transactions of this office; (3) to report the sanitary condition of the city and port and, if possible, of the surrounding country; (4) to fumigate vessels when necessary; (5) to inspect vessels, cargoes, crews, and passengers, when necessary; (6) to examine American seamen who are sick enough to be sent to a hospital, and to report to the consul general, recommending what action to take, according to finding.

Summary of transactions at Habana during the last two fiscal years

	1923–24	1924–25	Increase or decrease
Vessels going direct	1, 017	1, 129	+112
Vessels going via foreign ports	768	943	+175
Total bills of health issued	1, 785	2, 072	+287
Members of crews on vessels going direct	72, 784	83, 321	+10, 537
Members of crews on vessels going via foreign ports	47, 211	54, 420	+7, 209
Total members of crews	119, 995	137, 741	+17, 746
Passengers embarking at Habana	41, 387	48, 199	+6, 812
Passengers in transit	35, 218	44, 932	+9, 714
Total passengers	76, 605	93, 131	+16, 426
Passengers for the United States and its dependencies (included in the above)	62, 648	75, 107	+12, 459
Vaccination certificates	0	0	0
Vessels fumigated by the Service	21	11	−10
Vessels fumigated by the Cuban quarantine under the supervision of the Service	[1] 69	124	+55
Vessels recommended for fumigation at a United States port	0	0	0
Sick seamen sent to a hospital at Habana	2	3	+1
Sick seamen treated in office or on board	38	16	−22
Total sick seamen treated	40	19	−21
Total visits	40	19	−21
Certificates issued to seamen	25	10	−15

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[1] Discontinued Feb. 2, 1923; began again Sept. 12, 1923.

PROGRESO, YUCATAN, MEXICO

Acting Asst. Surg. Charles E. Athey in charge.

No authenticated case of yellow fever has been reported from the State of Yucatan since December 20, 1920, although several rumors of yellow fever which proved to be unfounded were extant. On August 29, 1924, a reporter for a New York paper cabled that yellow fever existed among the employees of a certain company in the chicle camps of Yucatan and Campeche, and that three deaths had resulted therefrom. Subsequent investigation by the United States Public Health Service, the Mexican Department of Public Health (National, State, and local), and by the International Health Board failed to locate not only the disease but also the company named in the report.

PUERTO MEXICO, MEXICO

Acting Asst. Surg. J. J. Sparks in charge.

An outbreak of smallpox was reported along the railway line, chiefly confined to the other side of the Isthmus. No case occurred here.

Since the rainy season began the local authorities have been working on the mosquito destruction campaign, putting oil on the water pools, draining wherever possible, inspecting back yards for water containers, and placing fish in the gullies, pools, and small brooks. This work has proved very beneficial, and as a result, the number of mosquitoes has notably decreased.

There has been no evidence of plague, cholera, or yellow fever at this port or vicinity during the year.

SHANGHAI, CHINA

Acting Asst. Surg. S. A. Ransom in charge.

The work performed at this station shows a decrease as compared with the previous fiscal year. There was a falling off in the number of bills of health, of passengers and crew inspected, vessels inspected, and vessels fumigated. The largest items of decrease resulted from an order of the Bureau to discontinue the inspection of the personnel of mail steamers bound to Manila and American ports.

Of the cases of illness investigated on board vessels in connection with the issue of bills of health, none proved to be quarantinable.

One hundred partially loaded vessels were treated with carbon dioxide gas, and 1,090 rats were destroyed. Sulphur dioxide was used in 25 empty vessels, and 189 rats were killed.

The outstanding features in regard to morbidity of this port among foreigners was a decrease of 40 cases in smallpox, and an increase of 20 cases in scarlet fever, 25 cases of typhoid and paratyphoid fever, and of 43 cases of amebic and 78 of bacillary dysentery. Among Chinese there were 90 less deaths from smallpox, 21 less from tuberculosis, 90 less from cholera 76 less from measles, while there was an increase of 64 deaths from dysentery, according to reports from the municipal health department. Total foreign deaths decreased by 37 and deaths of natives by 1,173. Rats examined for plague show an increase of 4,708, without a positive report.

TUXPAM, MEXICO

Acting Asst. Surg. L. M. Taylor in charge.

The duties of the medical officer consists in inspecting the crews of vessels bound for southern ports in the United States, reporting on health and sanitary conditions, including the Mexican situation, inspecting meat and food supplies when requested, and examining and advising seamen who report themselves sick. Tuxpam is located midway between Tampico and Vera Cruz and exports nothing to the United States except petroleum, chicle, and vanilla. No passengers are carried from here, and when members of the crew are permitted ashore this fact is noted on the bill of health.

VERA CRUZ, MEXICO

Acting Asst. Surg. H. E. Gimler in charge.

The work at this station consists in the inspection of members of crews and of passengers embarking for the United States and the supervision of the fumigation of vessels. No cases of yellow fever or plague were reported.

From September 27, 1924, to April 23, 1925, 175 cases of smallpox with 71 deaths were reported in Vera Cruz. During this period, the local public health department vaccinated all residents and transients in the city. Measures for the destruction of mosquitoes and of rats were carried out by the federal public health authorities.

YOKOHAMA, JAPAN

Surg. Vance B. Murray in charge.

The city of Yokohama has made steady progress in reconstruction since July 1, 1924, especially in the case of public utilities.

The new docks, well on the way to completion, are of concrete and stone, without crevices or other hiding places for rats.

The water supply, which is taken from a river, has been completely repaired. The water is sedimented, filtered, and treated with chlorine. A frequent bacteriological check is kept.

Rats about the piers have decreased greatly in number since July 1924. Bounties are awarded at all police stations for dead rats taken in the city. Since the rotting cocoons are good rat food, the waste-silk warehouses are most infested.

A foreign, as distinct from Japanese, hospital will be finished before September, 1925, and will be open to sailors.

The Manji Byoin, Japanese pest house, affords a good index of the infectious disease in the city. Typhoid, the most common infectious disease, is mandatorially treatable in this hospital, with rare exceptions when private institutions under special authority are allowed to keep a case from time to time. Typhoid fever is from various sources, hard to control among the native population, and is not prevalent among the better class of educated people.

The police have considerable sanitary duties. Once a year and more often if an epidemic warrants, every householder is required to put the contents of his house in the street and thoroughly clean them, depositing the rubbish in the street where it is collected. At such times the streets are often impassible for vehicles. The police exercise careful supervision of this work assisted by sanitary inspectors.

In July, 1924, two cases of human plague were reported in Shidzouka prefecture (this and Kanagawa ken are the two prefectures constituting the Yokohama consular district) at a considerable distance from the port.

During the winter an epidemic of influenza in Tokyo was reported with considerable case incidence but rather low mortality. Yokohama suffered very lightly.

SUMMARY OF QUARANTINE TRANSACTIONS

Summary of quarantine transactions at continental, insular, and foreign stations for the fiscal year ended June 30, 1925

Station	Number of vessels inspected	Number of vessels fumigated	Number of passengers and crews inspected	Bills of health issued or countersigned
Continental	19,731	6,607	[1] 1,715,936	0
Insular	2,867	534	369,701	2,765
Foreign	7,212	2,191	821,019	14,443
Total	29,810	9,332	2,906,656	17,208

[1] Maritime stations, 1,666,242; border stations, 49,694. Statistics do not include "local" travelers at border stations, numbering 4,579,810, who, however, were given cursory inspection.

MEDICAL INSPECTION OF ALIENS

During the fiscal year there were examined by medical officers of the United States Public Health Service 545,472 alien passengers for the purpose of detecting physical or mental defects or diseases, as provided for in the United States immigration laws, as compared with 938,928 for the fiscal year ended June 30, 1924, 745,515 for the fiscal year ended June 30, 1923, 586,228 for the fiscal year ended June 30, 1922, and 1,137,682 for the fiscal year ended June 30, 1921. In addition to the passengers examined, 854,915 alien seamen were inspected, as provided for in the act of February 5, 1917, as compared with 874,962 for the fiscal year ended June 30, 1924, 826,295 for the fiscal year ended June 30, 1923, 783,193 for the fiscal year ended June 30, 1922, and 851,928 for the fiscal year ended June 30, 1921. The reduction in the number of alien passengers examined in 1922 and subsequent years from that in 1921 was largely due to the application of the "3 per cent law." The immigration act of 1924 further reduced the number of immigrants. The accompanying tables present in detail the data relative to the inspection and certification of alien passengers and alien seamen during the fiscal year under report.

Alien seamen inspected and certified at all ports and places in the United States and its dependencies and in Canada

Place	Number of alien seamen examined	Alien seamen certified					Important diseases for which certification was made										
		Class A		Class B	Class C												
		(1) Idiocy, imbecility, feeble-minded, insanity, mentally defective, epilepsy, tuberculosis, chronic alcoholism	(2) Loathsome contagious or dangerous contagious diseases	Disease or defect which affects ability to earn living	Disease or defect of less degree	Total	Idiocy, imbecility, feeble-minded, mentally defective	Epilepsy	Insanity	Psychopathic inferiority	Chronic alcoholism	Tuberculosis	Trachoma	Favus	Syphilis	Soft chancre	Gonorrhea
Ajo, Ariz	1			1		1											
Baltimore, Md	16,085	3	23	13	7	46						3			3	8	12
Bellingham, Wash	561		1			1											
Biscayne Bay, Fla. (quarantine)	3,886			3		3											3
Blaine, Wash	0																
Boston, Mass.	59,343	1	213	141	112	467						1	70		33	54	56
Brownsville, Tex	0																
Brunswick, Ga	1					0											
Buffalo, N. Y	2,199	1		73	4	78						1					
Calais, Me	2					0											
Calexico, Calif	0																
Charleston, S. C	3,331		7	5	1	13									1	4	2
Columbia River, Oreg. (quarantine)	3,644		8		1	9									1	2	5
Columbus, N. Mex	0					0											
Coos Bay, Oreg	847					0											
Delaware Breakwater, Del.	0																
Del Rio, Tex	0																
Detroit, Mich	646					0											
Douglas, Ariz	0																
Duluth, Minn	398	1	3			4	1										3
Eagle Pass, Tex	0																
Eastport, Idaho	0																
Eastport, Me	0																
El Paso, Tex	0																
Fall River, Mass	1,352		2			2										1	1
Fort Monroe, Va	31,195	18	201	14	20	253						18			20	81	100
Freeport, Tex	1,331		3			3									3		
Galveston, Tex	24,569	3	127	94		224						3	16		41	16	54
Gloucester, Mass	148			1	1	2											
Havre, Mont	0																
Halifax, N. S	0																
Hidalgo, Tex	0																
Honolulu, Hawaii	7	2	1	4		7						2			1		
Hoquiam (Aberdeen), Wash	3,016		1			1							1				
Houlton, Me	0																
International Falls, Minn.	0																
Jackman, Me	0																
Ketchikan, Alaska	0																
Key West, Fla	4,278		3			3											3
Laredo, Tex	0																
Lewiston, N. Y	0																
Marcus, Wash	0																
Mobile, Ala	6,955	1	33	11	1	46						1			16	6	11
Montreal, Canada	25			2	1	3											
Naco, Ariz	0																
New Bedford, Mass.[1]	75					0											
New Orleans, La. (city)	3,924	1	10	1	10	22			1			1			2		8
New Orleans, La. (quarantine)	58,304			2		2											
Newport, Vt	0																
New York, N. Y.[2]	465,558	14	180	34	20	248		2	4			8	2		30	28	81
Niagara Falls, N. Y	0																
Nogales, Ariz	0																

[1] New Bedford, Mass., established May, 1925.

[2] One case of clonorchiasis certified at New York.

Alien seamen inspected and certified at all ports and places in the United States and its dependencies and in Canada—Continued

Place	Number of alien seamen examined	Alien seamen certified					Important diseases for which certification was made										
		Class A		Class B	Class C												
		(1)	(2)														
		Idiocy, imbecility, feeble-minded, insanity, mentally defective, epilepsy, tuberculosis, chronic alcoholism	Loathsome contagious or dangerous contagious diseases	Disease or defect which affects ability to earn living	Disease or defect of less degree	Total	Idiocy, imbecility, feeble-minded, mentally defective	Epilepsy	Insanity	Psychopathic inferiority	Chronic alcoholism	Tuberculosis	Trachoma	Favus	Syphilis	Soft chancre	Gonorrhea
Noyes, Minn	0																
Ogdensburg, N. Y	466		1	9	9	19											1
Oroville, Wash	0																
Pascagoula, Miss	106					0											
Pensacola, Fla	2, 458	1	10		10	21						1			2	4	4
Perth Amboy, N. J	7					0											
Philadelphia, Pa	31, 067	6	183	124	33	346		1				5	13		49	26	94
Philippine Islands	0																
Portal, N. Dak	0																
Port Angeles, Wash	68					0											
Port Huron, Mich	0																
Portland, Me	6, 904		11		2	13									1		10
Portland, Oreg	10	3		3	3	9	1					1			1		
Porto Rico (other than San Juan)	9, 136		5			5										2	3
Port San Luis, Calif	256					0											
Port Townsend, Wash	12, 132	1	15	13	4	33						1				10	4
Presidio, Tex	0																
Providence, R. I	4, 266		8		2	10										5	3
Quebec, Canada	0																
Rio Grande, Tex	0																
Roma, Tex	0																
Sabine, Tex	1, 942	4	28	4	3	39			1			3	4		10	6	7
St. Albans, Vt	0																
St. Johns River, Fla. (quarantine)	2, 403		16	2	4	22										8	8
St. John, New Brunswick	0																
San Diego, Calif	4, 979					0											
San Pedro, Calif	36, 364	4	12	2		18				2		2			2	3	7
San Fernando, Ariz	0																
San Francisco, Calif.[3]	27, 941		4			4											1
San Juan, P. R	11, 066		34	8		42									2	17	15
Scobey, Mont.[4]	0																
Sault Ste. Marie, Mich	0																
Savannah, Ga	3, 780	1	13	8	7	29					1					4	9
Seattle, Wash	0																
Sumas, Wash	0																
Sweet Grass, Mont	0																
Tacoma, Wash	555					0											
Tampa, Fla	0																
Tampa Bay, Fla. (quarantine)	3, 395		26			26									8	6	12
Tia Juana, Calif	0																
Tucson, Ariz	0																
Van Buren, Me	0																
Vanceboro, Me	0																
Vancouver, British Columbia	0																
Victoria, British Columbia	3, 600					0											
Wilmington, N. C	0																
Winnepeg, Canada	0																
Yarmouth, Novia Scotia	333			2	13	15											
Total	854, 915	65	1, 182	574	268	2, 089	2	3	6	2	1	51	106	0	226	291	517

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[3] Three cases of clonorchiasis certified at San Francisco.

[4] Scobey, Mont., established September, 1924.

Alien passengers inspected and certified at all ports and places in the United States and its dependencies and in Canada

Place	Number of alien passengers examined	Alien passengers certified					Important diseases for which certification was made										
		Class A		Class B	Class C												
		(1) Idiocy, imbecility, feeble-minded, insanity, mentally defective, epilepsy, tuberculosis, chronic alcoholism	(2) Loathsome contagious or dangerous contagious diseases	Disease or defect which affects ability to earn a living	Disease or defect of less degree	Total	Idiocy, imbecility, feeble-minded, mentally defective	Epilepsy	Insanity	Psychopathic inferiority	Chronic alcoholism	Tuberculosis	Trachoma	Favus	Syphilis	Soft chancre	Gonorrhea
Ajo, Arizona	193	1	-----	1	-----	2	------	--	--	---	--	1	---	--	---	---	---
Baltimore, Md	82	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Bellingham, Wash	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Bicsayne Bay, Fla. (quarantine)	1,082	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Blaine, Wash	173	32	19	59	12	122	7	1	--	20	3	2	---	1	2	---	13
Boston, Mass.[1]	12,315	6	31	651	590	1,278	2	--	3	---	--	1	1	--	---	1	2
Brownsville, Tex	1,957	10	53	200	16	279	2	--	--	3	2	3	48	--	---	1	4
Brunswick, Ga	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Buffalo, N. Y	8,066	15	1	96	5	117	5	--	8	---	1	1	---	--	---	---	1
Calais, Me	110	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Calexico, Calif.[2]	1,133	1	4	4	-----	9	------	--	--	---	--	1	1	--	---	---	2
Charleston, S. C	17	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Columbia River, Oreg. (quarantine)	15	2	------	------	1	3	------	--	--	2	--	---	---	--	---	---	---
Columbus, N. Mex	474	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Coos Bay, Oreg	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Delaware Breakwater, Del.	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Del Rio, Tex	1,954	2	------	1	2	5	1	--	--	---	--	1	---	--	---	---	---
Detroit, Mich.[3]	6,382	57	16	223	193	489	10	6	5	18	--	10	1	--	4	---	4
Douglas, Ariz	2,935	1	37	35	76	149	1	--	--	---	--	---	36	--	---	---	1
Duluth, Minn	10,230	2	2	------	-----	4	------	1	--	1	--	---	---	--	1	---	1
Eagle Pass, Tex	17,808	5	4	27	30	66	------	--	1	2	--	2	---	--	1	---	1
Eastport, Idaho	4,876	6	0	116	29	151	------	--	--	3	--	3	---	--	---	---	---
Eastport, Me	104	-------	------	2	-----	2	------	--	--	---	--	---	---	--	---	---	---
El Paso, Tex.[4]	28,443	15	41	859	183	1,098	4	1	5	2	--	2	8	11	20	---	2
Fall River, Mass	10	-------	1	------	-----	1	------	--	--	---	--	---	---	--	1	---	---
Fort Monroe, Va	306	-------	------	1	4	5	------	--	--	---	--	---	---	--	---	---	---
Freeport, Tex	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Galveston, Tex	341	1	------	1	-----	2	------	--	--	---	--	1	---	--	---	---	---
Gloucester, Mass	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Halifax, Nova Scotia	4,370	12	4	152	163	331	1	3	1	3	--	4	---	--	2	---	---
Havre, Me	99	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Hidalgo, Tex.[5]	2,028	-------	9	------	-----	9	------	--	--	---	--	---	7	--	---	---	---
Honolulu, Hawaii[6]	1,099	-------	8	14	4	26	------	--	--	---	7	---	---	--	---	---	---
Hoquiam (Aberdeen), Wash	0	-------	------	------	-----	-----	------	--	--	---	--	---	---	--	---	---	---
Houlton, Me	105	6	------	------	-----	6	------	--	--	---	3	3	---	--	---	---	---
International Falls, Minn	769	5	1	51	1	58	------	--	2	2	--	1	---	--	1	---	---
Jackman, Me	91	1	1	3	4	9	------	1	--	---	--	---	---	--	---	1	---
Ketchikan, Alaska	918	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Key West, Fla	7,741	2	------	22	8	32	1	--	--	---	--	1	---	--	---	---	---
Laredo, Tex.[7]	29,367	15	371	331	19	736	12	1	--	---	--	2	248	--	---	10	19
Lewiston, N. Y	101	-------	------	4	4	8	------	--	--	---	--	---	---	--	---	---	---
Marcus, Wash	331	2	------	16	15	33	------	--	1	---	1	---	---	--	---	---	---
Mobile, Ala	70	-------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Montreal, Canada	21,307	84	135	1,659	417	2,295	23	3	16	---	1	41	77	--	2	22	32
Naco, Ariz	3,616	14	58	14	5	91	------	3	2	3	5	1	14	1	29	---	14
New Bedford, Mass.[8]	56	-------	------	1	-----	1	------	--	--	---	--	---	---	--	---	---	---
New Orleans, La. (city)	463	1	------	1	-----	2	1	--	--	---	--	---	---	--	---	---	---
New Orleans, La. (quarantine)	3,644	3	------	------	3	6	------	--	--	---	--	3	---	--	---	---	---
Newport, Vt	3,224	12	2	133	9	156	5	1	4	---	--	2	---	--	---	---	1
New York, N. Y.[9]	241,240	92	234	7,763	6,141	14,230	17	3	12	---	1	59	76	--	14	12	119
Niagara Falls, N. Y	4,507	8	1	70	65	144	------	2	4	1	--	1	1	--	---	---	---

[1] 26 cases of clonorchiasis certified at Boston, Mass.

[2] 1 case of leprosy certified at Calexico, Tex.

[3] 1 case of leprosy certified at Detroit, Mich.

[4] 1 case of leprosy certified at El Paso, Tex.

[5] 7 cases of leprosy certified at Hidalgo, Tex.

[6] 1 case of leprosy certified at Honolulu, Hawaii.

[7] 2 cases of leprosy certified at Laredo, Tex.

[8] New Bedford, established May, 1925.

[9] 2 cases of clonorchiasis certified at New York, N.Y.

Alien passengers inspected and certified at all ports and places in the United States and its dependencies and in Canada—Continued

Place	Number of alien passengers examined	Alien passengers certified					Important diseases for which certification was made										
		Class A		Class B	Class C												
		(1) Idiocy, imbecility, feeble-minded, insanity, mentally defective, epilepsy, tuberculosis, chronic alcoholism	(2) Loathsome contagious or dangerous contagious diseases	Disease or defect which affects ability to earn a living	Disease or defect of less degree	Total	Idiocy, imbecility, feeble-minded, mentally defective	Epilepsy	Insanity	Psychopathic inferiority	Chronic alcoholism	Tuberculosis	Trachoma	Favus	Syphilis	Soft chancre	
Nogales, Ariz	12,113	9	30	59	5	103	1	--	4	---	--	4	28	--	---	---	2
Noyes, Minn	270	5	1	9	3	18	3	1	--	---	--	1	---	--	1	---	---
Ogdensburg, N. Y	56	3	------	13	8	24	------	1	--	---	--	2	---	--	---	---	---
Oroville, Wash	158	2	------	1	-----	3	1	--	--	---	--	2	---	--	---	---	---
Pascagoula, Miss	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Pensacola, Fla	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Perth Amboy, N. J	5	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Philadelphia, Pa	775	------	------	21	4	25	------	--	--	---	--	---	---	--	---	---	---
Philippine Islands	7,499	2	59	30	-----	91	------	--	--	1	--	1	---	--	---	---	---
Portal, N. Dak	548	15	------	77	12	104	5	4	2	---	--	4	---	59	1	---	---
Port Angeles, Wash	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Port Huron, Mich	2,404	44	1	193	64	302	6	--	2	28	3	5	---	--	---	---	---
Portland, Me	186	------	------	------	3	3	------	--	--	---	--	---	---	--	---	---	---
Portland, Oreg	27	7	------	10	6	23	1	--	--	2	--	4	---	--	---	---	---
Porto Rico (other than San Juan)	853	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Port San Luis, Calif	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Port Townsend, Wash	1,784	------	1	2	-----	3	------	--	--	---	--	---	1	--	---	---	---
Presidio, Tex	8,891	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Providence, R. I	2,443	------	3	40	18	61	------	--	--	---	--	---	3	--	---	---	---
Quebec, Canada	10,977	5	------	122	21	148	1	1	--	1	--	2	---	--	---	---	---
Rio Grande City, Tex	303	1	2	2	-----	5	------	--	--	1	--	---	---	--	---	---	2
Roma, Tex	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Sabine, Tex	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
St. Albans, Vt	491	8	------	20	18	46	2	1	2	1	--	2	---	--	---	---	---
St. Johns River, Fla. (quarantine)	37	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
St. John, N. B	4,950	3	------	83	35	121	2	--	--	---	--	1	---	--	---	---	---
San Diego, Calif	1,107	1	------	------	-----	1	------	--	--	---	--	---	---	--	---	---	---
San Pedro, Calif	3,084	1	1	1	-----	3	1	--	--	---	--	1	---	--	1	---	---
San Francisco, Calif.[10]	7,750	2	47	77	43	169	------	1	1	---	--	---	2	--	1	1	2
San Fernando, Ariz	61	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
San Juan, P. R	4,815	1	------	10	1	12	------	--	--	---	--	1	---	--	---	---	---
Scobey, Mont.[11]	62	2	1	5	7	15	------	--	--	---	--	2	---	--	1	---	---
Sault Ste. Marie, Mich	463	2	------	2	8	12	1	1	--	---	--	---	---	--	---	---	---
Savannah, Ga	39	------	------	------	3	3	------	--	--	---	--	---	---	--	---	---	---
Seattle, Wash.[12]	2,331	12	125	176	16	329	2	--	4	1	--	5	5	1	8	8	29
Sumas, Wash	508	5	9	111	19	144	5	--	--	---	--	1	---	--	2	---	7
Sweet Grass, Mont	596	1	------	------	-----	1	------	--	--	---	--	1	---	--	---	---	---
Tacoma, Wash	18	------	1	1	-----	2	------	--	--	---	--	---	---	--	---	---	1
Tampa, Fla	1,828	------	1	------	-----	1	------	--	--	---	--	---	1	--	---	---	---
Tampa Bay, Fla. (quarantine)	157	------	------	------	-----	0	------	--	--	---	--	---	---	--	---	---	---
Tia Juana, Calif	2,582	10	11	30	13	64	------	1	1	1	--	3	2	1	1	---	6
Tucson, Ariz	262	12	31	15	3	61	------	--	2	6	1	3	4	--	13	---	14
Van Buren, Me	107	2	------	11	3	16	------	--	--	---	--	2	---	--	---	---	---
Vanceboro, Me	852	1	------	2	-----	3	------	--	--	---	--	---	---	--	1	---	---
Vancouver, British Columbia	2,110	14	2	79	26	121	5	--	--	4	--	5	---	--	1	---	1
Victoria, British Columbia	2,633	12	------	8	40	60	3	1	2	4	--	3	---	--	---	---	---
Wilmington, N. C	0	------	------	------	-----	------	------	--	--	---	--	---	---	--	---	---	---
Winnipeg, Canada	18,438	18	1	947	26	992	1	4	--	1	2	10	---	--	1	---	---
Yarmouth, Nova Scotia	16,747	2	------	92	88	182	2	--	--	---	--	---	---	--	---	---	---
Total	545,472	615	1,360	14,759	8,492	25,226	134	42	84	111	30	211	564	74	109	56	280

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[10] 41 cases of clonorchiasis certified at San Francisco, Calif.
[11] Scobey, Mont., established September, 1924.
[12] 74 cases of clonorchiasis certified at Seattle, Wash.

Reports from Immigration Stations

AJO, ARIZ.

Acting Asst. Surg. O. B. Patton in charge.

It will be noted that there is quite a decrease in the number of aliens inspected and certified in comparison with last year. The major portion of the aliens examined were either visitors or transients, there being practically no immigrant arrivals since the immigration act of 1924. Since there is no American consular representative in the Altar district, adjacent to this station, from whence practically all applicants at this port come, it is not practical for immigrants to secure the proper visas.

BOSTON, MASS.

Acting Asst. Surg. A. J. Nute in charge.

The Cunard, White Star, Leyland, Furness-Withy, Dollar, Swedish-American, United Fruit, Farquhar, and International Steamship lines maintained regular foreign service to Boston. In June, the Munson Line inaugurated a passenger service from Newfoundland, and the Trans-Atlantic Italian Line a service from Naples, Italy. The principal transportation companies are slowly but gradually having their leased piers improved for inspection purposes and, as better facilities are established, more medical examinations are being completed on the piers, or at the hospitals.

Since the quota law went into effect the majority of aliens arriving at this port are from northern and western Europe, usually able to speak English, and belong to the mechanical, factory, or rural unskilled labor classes. The first-class and tourist passengers constituted but a small proportion among the total arrivals. The second-class passengers continued to lead in the percentage of medical certificates, hence justified a most careful scrutiny. The third class as a whole showed improvement.

The majority of large passenger ships making Boston a port of call have so arranged their schedules that the greatest congestion occurs on Saturdays, Sundays, and Mondays. This makes it necessary for the entire personnel of this station to work late on Saturdays, and early and late on Sundays and Mondays from March to November. As soon as possible after the Boston passengers are landed, the vessels clear for New York. Because these vessels sometimes dock and clear after sunset, and because of the unsatisfactory conditions for inspection after dark, the percentage of alien seamen certified has fluctuated considerably.

The medical inspection of passengers necessarily must be carried out at the time of arrival. The immigration officials refuse to examine nonexempt third-class aliens who arrive on Sundays and holidays. They permit the transportation companies to remove the aliens from the vessels and lodge them in the detention station for the night, but desire the Public Health Service to inspect all aliens so that none who are afflicted with disease that might be dangerous to themselves or others will be placed in the station over night. This condition made it impracticable, with the limited help available, to make many intensive examinations.

Only two cases of mental disease—one dementia præcox and one unclassified, probably mentally deficient—reported by Massachusetts institutions as public charges, landed in Boston from July 1, 1924, to June 30, 1925. Investigation showed that the former had been treated prior to coming to the United States, had been classed as recovered, and arrived apparently in a normal interval. The latter had no prior record, but was certified at the time of arrival for defective vision and speech. One case of pulmonary tuberculosis was reported as a public charge after two years' residence in Massachusetts.

All passengers, except Chinese, arriving from Canada on the Eastern Steamship Co.'s boats were passed at the port of embarkation. The Chinese were presented at this office for more detailed examination. Of the 171 examined, 26 were certified for clonorchiasis, 67 for hookworm, and 51 for round and whipworm. Some had mixed infections. All passengers, regardless of race, from districts known to be infected with intestinal parasites, are subjected to stool examinations at this station.

One hundred and five alien stowaways were detected and brought to the station for examination. Twenty-nine were certified for physical defects.

One hundred and seventy-four aliens were admitted to hospitals for treatment or observation for diagnosis. One passenger died from appendicitis, although transferred from ship to hospital immediately after arrival. No epidemic occurred among the immigrants at the station. This may have been due to the small number of persons detained for long periods, as very few aliens were held for more than 24 hours. The location and arrangement of this station is not conducive to economy, and the quarters are not suitable for prolonged detention.

Medical care and treatment has been furnished to the prisoners of the immigration service arrested under departmental warrants, and to the Chinese held pending court decisions or investigations. Many of these individuals have been detained for months; some, for more than a year. At present these classes constitute most of the regular inmates.

Regardless of concerted effort to save time and to expedite traffic, there is plenty of work to be done at this port by the present personnel. Boston is headquarters for the subports in Massachusetts, Rhode Island, and Connecticut in the matter of immigration inspection, and for the New England district in public charge investigations. Many of these subports have no medical officer attached, hence, upon arrival of a ship, this office is called on for service. Aliens have been examined from Newburyport, Mass., on the north, to New London, Conn., on the south.

In addition to the regular examination of arriving aliens, investigation of hospital cases, reexaminations of landed aliens, service on medical boards, and laboratory work keep the staff steadily occupied. Recent legislation has brought added duties and responsibilities. At present the detailed work at this station is distinctly increased over the year 1913, which was an unusually busy year. The total passenger traffic of that year roughly corresponded in number with the passengers and crews for the past year, while the personnel remains the same.

The following table may give some idea of the thoroughness of present-day inspection, compared with 1913, when no quota selection or seaman's act was in existence. One familiar with legal medical procedure can understand the amount of time and care that must have been given to the 1,043 defectives in order that their certificates could be readily defended against legal attack if the Immigration Bureau should undertake deportation proceedings.

	Ships boarded	Persons inspected	Certificates A	Certificates B
1913	293	78,706	65	617
1925	1,097	71,658	251	792

This station has been represented at all meetings of the Boston Federal Business Association. The bureau's policy in the matter of constructive economy has been given careful consideration in all recommendations. It is regretted that the reclassification act as carried out to date did not give the station staff appropriate recognition in the matter of grade and pay. It is desired to acknowledge the cooperation and aid given at times by other Government officials, and the loyal work of the local staff.

EL PASO, TEX.

Surg. J. W. Tappan in charge.

Immigration at this port is principally Mexican, and the diseases certified have not differed materially from those of former years.

The medical inspection of aliens has been extended to include all individuals, first and second class alike. Provision has also been made for inspection on Sundays. This has called for full-time service on the part of the acting assistant surgeon detailed for immigration duty.

A laboratory service for the confirmation of the diagnosis of tuberculosis, syphilis, gonorrhea, favus, etc., has been instituted. Of the 35 Wassermann tests made by the laboratory 10 were positive. Owing also to these laboratory facilities, an increased number of cases of favus have been certified as compared with former years.

Statistics are being kept regarding the prevalence of trachoma, for which search is diligently made; and, while these are not yet complete, it may be said that the disease prevails among Mexicans applying at this port only to a very slight extent.

Mental defects have been given special consideration, and 10 aliens thus afflicted have been certified. It is believed that with the improved methods now used, more of this class may be detected.

The application of the immigration visa law deters many who are aware of their physical defects from applying for admission, as the fee, which is paid in advance, is not returnable in the event that such aliens are found inadmissible.

The detention barracks at the immigration station are given general hygienic supervision, and aliens detained therein receive medical attention as formerly.

MONTREAL, CANADA

Surg. F. Faget in charge.

There has been a decrease of about 30 per cent in the number of aliens examined at this office during the past year, due partly to the operation of the recent immigration law.

No changes have been made in the method of examination formerly in force.

A routine venereal inspection is made of all male aliens. It is not believed, however, that this has resulted in any marked increase in the number of venereal diseases certified.

Owing to the lack of a female physician or attendant at this office, no physical examination is made of female aliens; therefore a number of physcially defective and diseased female immigrants are enabled to enter the United States without having their condition discovered and properly certified.

NEW ORLEANS, LA.

Surg. W. C. Rucker in charge.

Owing to the restriction of immigration, very few alien immigrants arrived at this port. Those who did come were mostly tourists and transients who were allowed to stay in the country for a few weeks or months.

The immigration station is used as a detention barracks for Department of Justice warrant cases and for alien seamen infected with venereal diseases and other loathsome, dangerous, or contagious diseases certified at the quarantine station or by the medical officer at the immigration station. These aliens are treated until sufficiently improved to warrant their leaving and rejoining their ships. A few isolated cases are released if there is a physician on board the ship or if the ship is going foreign and there would be no danger to the seamen or to those who might come in contact with them.

The services of a nurse, two orderlies, and a pharmacist are urgently needed. The medical officer frequently fills his own prescriptions, particularly in emergency, otherwise the patient would go without medicine for at least 24 hours, perhaps longer, while the prescription was being sent to some drug store in the city.

After the administration of arsphenamin the patients are not seen by the medical officer until the following day, and there is no one at the station who would know what to do pending the arrival of the medical officer.

Aliens on board vessels arriving at the quarantine station during daylight hours are inspected by the quarantine officers. If disease or disability is found, the alien is not, as a rule, certified, but is referred to the medical officer, specially designated for the inspection of aliens at New Orleans, for further examination.

NEW YORK, N. Y.

Surg. W. C. Billings in charge.

The passage of the immigration law of 1924, which became operative with the beginning of the fiscal year 1925, coupled with the decision of the local immigration authorities not to bring to Ellis Island more than 1,000 aliens in any one day, has brought to the medical division the greatly hoped-for day when all immigrants presented to the line inspection section could be "intensively" examined. This year, for the first time in the history of Ellis Island, it has been possible to abandon the old "routine" examination entirely. It is doubtful whether a medical officer ever served at Ellis Island who did not appreciate the weakness of the only method of examination possible when numbers far beyond the capabilities of the station, both as to personnel and allotted floor space, were presented for examination, and it is probable that none ever served here who did not realize that it was impossible to carry out the examination of aliens in the manner expected and which the law contemplated. The only answer was that the remedy did not lie within our power. This was the situation: Fifteen medical officers, well trained though they were, endeavoring to isolate from an avalanche of 5,000 persons a day all of the persons suffering from one or another of physical or mental conditions specified in the immigration law, and this by the simple process of having these aliens file past them all day long at a distance of about one rod apart. That was the only method possible under former conditions and was termed, for want of a better name, the "routine examination." Now, fortunately, this is a thing of the past, although its results will be with us for many years to come.

We are now enabled, for the reasons mentioned at the beginning of this report, to examine such aliens as are presented at Ellis Island with sufficient accuracy to insure the detection of by far the greater proportion of persons either afflicted with the mandatorily excludable conditions, which embody undesirable mental states and the dangerous and loathsome contagious diseases, or presenting any other of the great variety of diseases which may affect ability to earn a living. The United States is concerned with the one group because of possible exposure of its citizenry to various contagions, and with the other because of the enormous amounts of money yearly expended in the upkeep of eleemosynary institutions of various kinds, particularly in view of the fact that the inmate personnel of these institutions is notably high as to its percentage of alien born and the first generation of alien-born parentage and because the money expended is most readily translated into terms of taxes paid by citizens.

Specific figures concerning two diseases for the control of which enormous sums are annually spent and which, in the one case, may occasion prolonged suffering, misery, and want, and in the other may fulfill the Scriptural dictum of visitation even unto the third and fourth generation, are here cited as concrete examples of the comparative value of the old "routine" method of examination and of the new, now universal, "intensive" method.

During the fiscal year 1914, 788,789 aliens were examined while passing along in line, fully dressed, and of these only 22, or 1 person out of every 35,853 were certified for pulmonary tuberculosis.

In 1920, the number of arrivals examined by line inspection had fallen to 214,756, 28 of whom, or 1 out of 7,669, were certified for pulmonary tuberculosis. This represents an improvement of nearly 500 per cent, expressed in terms of results, as compared with the methods that were in effect in 1914.

During the fiscal year just ended, 101,561 aliens were examined by the "intensive" method at Ellis Island; and of these, 58, or 1 out of every 1,734, were certified for pulmonary tuberculosis. Thus, it appears that in 1925 as compared to 1914 the efficiency in detecting the presence of the disease called "the great white plague" in aliens seeking admission to the United States was as 20 is to 1. Assuming that the proportion per thousand arrivals who were actually infected with tuberculosis of the lungs was exactly the same in 1914 as in 1925, if the same thoroughness of examination could have been applied in 1914 as was applied in 1925, the United States would have been saved giving domicile to 433 tuberculous aliens.

Passing to the question of the venereal diseases, to aid in the suppression of which the Congress has since 1918 appropriated $1,200,000, there were examined at Ellis Island in 1920, in the old "routine" way, 214,756, of whom 145 or 1 in every 1,481, were certified as being afflicted.

In 1925 there were 101,561 third-class aliens examined "intensively" for these diseases and 140, or 1 out of every 725 arrivals (including women), were certified.

Assuming that the percentage of infection was the same among the arrivals of 1920 as was found among those of 1925, and had it been possible to apply the same methods in 1920 as were applied during 1925, there should have been excluded in 1920, 151 alien immigrants infected with venereal disease.

Only two diseases, tuberculosis of the lungs and venereal diseases (taken as a group), have been used as illustrations; yet in these instances it is quite impossible to estimate the financial obligation which is involved in the admission of aliens so afflicted. It is impossible to say accurately whether or not they will, personally, ever become a public charge, and, hence, a burden upon the taxpayer; but it is safe to say that a goodly proportion of them will ultimately become so. It is quite impossible, of course, to estimate the extent to which such persons may become the foci of infection and to what extent those acquiring infection from them may become public burdens. It will be readily understood, also, that the descendants of those who are constitutionally inferior will not possess good resisting powers to tuberculosis and other wasting diseases. Never before, by reason of its limitations and the number of arrivals, has the medical division of this section had this opportunity of discovering those who were not physically and mentally qualified for admission to the United States as required by the immigration laws.

The operation of the new law has, during this fiscal year, obviated entirely what was during the last year a most distressing and exasperating routine occurrence—the "bunching" into the first few days of the month of the greater portion of the quota allowed for that month, with resulting congestion and unavoidable lowering of the standard of examination.

The "boarding section" of the station has operated as in previous years, but with a slightly diminished personnel. It is anticipated that, should the recently inaugurated inspection abroad become permanent, the personnel of this particular section will have to be materially increased.

The "hospital section" of the station has continued to be operated as United States Marine Hospital No. 43. The average length of stay in hospital of immigrant patients has been a little more than 11 days. Fortunately for hospital conditions, the Immigration Service has, during the year just closed, granted treatment to almost no trachoma, favus, or ringworm cases.

In the matter of the physical condition of the hospital, both in regard to upkeep and new construction, much that it was hoped might be accomplished during the year has not materialized.

PHILADELPHIA, PA.

Surg. F. A. Carmelia in charge.

The number of alien passengers entering through this port shows an increase over the immediately preceding years and reflects the efforts made by port interests to reestablish the port to its pre-war status as a port of entry for passengers. Most of the alien passengers arrived on Italian and British vessels from European ports; the remainder came from Caribbean ports.

Groups of alien passengers exceeding 25 in number are examined at the pier. If the number of passengers is less than 25 the immigration examination is made at the quarantine station immediately following the quarantine inspection. Alien seamen are inspected at this time also. Intensive examinations are not attempted at quarantine, since this would cause unwarranted delay of vessels. A preliminary immigration examination is made and the diseased and defective persons are provisionally certified to the immigration officers for further observation. Upon arrival of the vessel at the pier, the certified aliens are conducted to the immigration station, where the medical examination is completed.

PHILIPPINE ISLANDS

Surg. H. F. Smith in charge.

The medical inspection of arriving aliens was made at the five principal ports of entry in the Philippine Islands: Manila, Cebu, Iloilo, Jolo, and Zamboanga. A number of new ports of entry were authorized by the Philippine Legislature, but so far have not been formally open, and there were no immigration transactions at those ports.

The United States immigration laws are in force in the Philippine Islands and are administered by the collectors of customs acting as immigration officers. The medical examinations are made by officers of the United States Public Health Service in conjunction with their quarantine or relief duties. The year under report presented the same routine problems as former years, the medical examinations being conducted as usual. The figures for the year showed no particular increase or decrease. The arriving aliens were mostly from Asiatic countries. The facilities available for the general inspection of arriving aliens are practically nil. The work is performed either on board the arriving vessels or in the quarantine offices, neither of which places is satisfactory or even suitable for the type of examination desired. The number of aliens inspected during the year at the various ports of the Philippines was as follows:

Port	Inspected	Certified	Port	Inspected	Certified
Manila	6,633	63	Jolo	101	1
Iloilo	1	0	Zamboanga	764	27
Cebu	0	0			

As heretofore, a considerable amount of work was performed and a large number of boards were convened for the purpose of determining the age of arriving aliens. Owing to the peculiar conditions existing and the regulations covering the children of domiciled aliens, this work at time assumes considerable proportions. The certifications for diseased conditions were confined to favus, ringworm, and blindness.

PORT HURON, MICH.

Acting Asst. Surg. George M. Kesl in charge.

Approximately 12½ per cent of persons examined were found to be mentally or physically diseased or defective, and over one-third of those certified were returned to Canada either wholly or partly because of the medical certification. The increase in automobile travel at the expense of travel by rail increased the number of aliens examined at the pier of the Port Huron and Sarnia Ferry Co. and decreased the number examined at the St. Clair Tunnel station.

The United States Immigration Patrol continued to apprehend aliens attempting to enter the United States along the St. Clair River, necessitating medical and surgical treatment of aliens detained in the county jail. Approximately 30 aliens were treated at the jail and four at the Port Huron hospitals.

PORTO RICO

Surg. D. E. Robinson in charge.

The number of aliens landing at Porto Rican ports was not large. The greater part of the work pertains to San Juan. At three of the subports there were no examinations of aliens made, due to the fact that vessels arriving at these ports had touched previously at other Porto Rican ports.

The total number of aliens examined was 5,668 passengers and 20,202 alien members of crews.

QUEBEC, CANADA

Surg. W. C. Teufel in charge.

Service activities at this port in connection with the Immigration Service were carried on in much the same manner as in previous years. This work consists of the inspection of aliens from overseas and of Canadians. Practically all of the overseas aliens are from the British Isles, and the small number of certifiable conditions found is excellent evidence of the desirability of these immigrants.

Six thousand four hundred and eighty-five aliens from overseas were examined at this port. A large percentage were residents holding return permits. This is about one-third the number arriving during the previous fiscal year and the decrease is attributed to the restrictive measures of the new immigration act.

Four thousand four hundred and ninety-two Canadians, about double the usual number, were examined. Practically all of the Canadians examined are of French extraction and speak only the French language.

SAN DIEGO, CALIF.

Surg. J. F. Worley, in charge.

The immigration activities of the San Diego station include the medical inspection of aliens arriving on vessels at the port of San Diego and of those crossing the border at Tia Juana.

The former is carried on in connection with quarantine inspection, suspected aliens being referred to the relief station for further observation.

SAN FERNANDO, ARIZ.

Acting Asst. Surg. John M. Hardy, in charge.

Immigration through the port of San Fernando, Ariz., has been very much curtailed during the past year by the fact that there is no American consul located in the adjacent territory of Mexico. Immigration has been restricted almost entirely to aliens coming to the United States for a stay of less than one year for purposes of business or pleasure.

SAN FRANCISCO, CALIF.

Surg. Dunlop Moore, chief medical officer.

The work of the service at this station may be conveniently treated under the following headings: (1) Medical inspection of aliens, (2) hospital, (3) laboratory, (4) miscellaneous.

The marked falling off of more than 50 per cent in the number of arriving alien passengers is attributable largely to the enforcement of the immigration act of 1924, important sections of which took effect on July 1, 1924. It is possible that as a result of a recent decision of the Supreme Court affecting families of Chinese merchants, immigration may show an increase during the coming year.

Of the 7,750 alien passengers medically inspected, 6,191 were examined on board ship, with a negligible number of resulting certifications. On the other hand, 1,559 were remanded to the Angel Island immigration station, where, after intensive examination, 169 certificates, corresponding to almost 11 per cent of the aliens examined, were issued. It appears, therefore, that from the standpoint of the detection and certification of physical and mental defects which, under existing law is practically the sole object of the medical inspection of aliens, examination as conducted at the immigration station, with its superior facilities, proves many times more efficient than the ordinary examination performed on shipboard. This observation merely confirms the opinion of all Government officers whose judgment is based upon extensive personal experience. Immigration regulations having a tendency to discourage the intensive physical and mental examination of arriving aliens are to be deprecated..

HOSPITAL

During the fiscal year new admissions to hospital numbered 311. Noteworthy diseases with numbers of cases were as follows: Uncinariasis, 85; scabies, 34; mumps, 9; as compared with 195, 76, and 33, respectively, during the previous year.

Cerebrospinal fever, which in recent years has been prevalent at times to a disquieting extent, among newly-arrived immigrants in detention at this station, and after having been present every year since 1918, does not figure in our morbidity records. Admissions for this disease (duplications excluded) by years were as follows: 1918, none; 1919, 1; 1920, 7; 1921, 28; 1922, 9; 1923, 10; 1924, 8; 1925, none.

One case of favus of the scalp, a disease rarely encountered at this station, was observed in the person of a Mexican "arrest case." Two cases of drug addiction and two cases of insanity were under treatment, though our facilities for handling this class of cases are admittedly inadequate. Seven patients urgently requiring special treatment not available here were transferred to other institutions for humanitarian reasons.

Since the opening of this station in 1910, almost 6,000 cases of uncinariasis have received anthelmintic treatment. Since these were all handled as hospital patients under careful supervision during the entire period of treatment, which was preceded and followed by careful examination of centrifugalized feces for ova of parasites, made by physicians experienced in this kind of laboratory work, the results may be worthy of brief record. If cure of this disease is to be predicated on entire absence of ova upon careful microscopic examination of centrifugalized stools, results at this station are less favorable than the results of treatment as reported in the literature would indicate, and are more in agreement with those who hold that to aim at the entire elimination of ova from the feces erects a standard higher than attainable by a reasonable amount of treatment. After fair trial of the commonly recommended anthelmintics, chenopodium appears to be the most efficient remedy in uncinariasis. It possesses the additional advantage of being one of the most valuable remedies in ascariasis, a complication very commonly encountered. As polyparasitism is the rule here, opportunity has been afforded to study the effects of treatment on various other parasites besides those mentioned above. Clonorchis sinensis, in the experience at this station, does not yield to any medicinal treatment, though a few reports of apparent cures have appeared in medical literature.

On the other hand, the experience here indicates that another of the trematodes peculiar to the Far East, *Fasciolopsis buski*, yields to treatment perhaps more readily than any other helminth parasitic in the digestive tract of man.

LABORATORY

Available laboratory facilities have been used in the diagnosis of disease in connection with the inspection of arriving aliens as well as the treatment of hospital cases. Of particular interest in this connection is the microscopic examination of the feces as a means of diagnosis of helminthic diseases extremely prevalent among certain classes of aliens at this port. Among the parasites whose presence was thus determined during the past year were the following, arranged in general order of frequency: *Ascaris lumbricoides, Trichuris trichiura*, hookworm, *Clonorchis sinensis, Strongyloides stercoralis, Hymenolepis nana, Fasciolopsis buski, Taenia saginata*, and *Metagonimus yokogawai*. The freedom from cestode infestations of newly arrived Chinese and Japanese is again noted. Even such a common and cosmopolitan parasite as *h. nana* has never been encountered here in tens of thousands of examinations of individuals of the abovenamed races. On the other hand, by way of compensation, a number of important fluke diseases are peculiar to the Sino-Japanese area, and are encountered only in individuals with a history of residence in the endemic regions. *C. sinensis* has never been seen here except in Chinese and Japanese. All cases of *f. buski* infestation at this station have occurred in Southern Chinese. *M. yokogawai*, in the experience of this station, is a parasite found in Japanese only.

MISCELLANEOUS

Outpatient relief was administered to detained aliens and others suffering from minor ailments not requiring hospitalization. Such treatments to the number of 1,213 were given during the year.

When requested by competent authority, certificates or opinions on a variety of subjects have been submitted, such as the following: 31 estimates of approximate age, 12 certificates of helplessness. A considerable number of physical and mental examinations and reexaminations were made apart from the routine inspection of immigrants arriving at this port.

At the request of the commissioner, this office has made the required physical examinations of persons entering the classified civil service at this station.

WINNIPEG, MANITOBA, CANADA

Acting Asst. Surg. Harry J. Watson in charge.

On account of the new quota law, coming into effect on July 1, 1924, the fiscal year ending June 30, 1925, has been one of the busiest at this station for several years.

Many of the people seeking admission have resided in Canada for many years. Climate and financial conditions are causes for leaving.

Medical and surgical cases going to United States hospitals are as numerous as ever, and a bond of $500 is usually imposed on them to guarantee their return to Canada.

DIVISION OF SANITARY REPORTS AND STATISTICS

In charge of Asst. Surg. Gen. B. J. Lloyd

The Division of Sanitary Reports and Statistics is charged with the duty of collecting and distributing information which is necessary to enable health officers, Federal, State, and local, to protect the health of their communities. Information of the prevalence of communicable diseases is secured from all available sources, both domestic and foreign. The reports are examined, analyzed, and the pertinent data are compiled in statistical or other form for publication.

Laws, ordinances, and regulations pertaining to public health adopted by the Federal Government and by State and municipal authorities are compiled, and the decisions of courts which are of interest to sanitarians are abstracted.

The statistical and legal material secured by the division, together with special articles on subjects of interest to public-health workers, are published in the Weekly Public Health Reports or as supplements, and many of the articles are reprinted as separates for economical distribution.

Publications issued by the Public Health Service are distributed by the division, which also is charged with the work of sending out the stereopticon slides used in illustrating lectures on health subjects by service officers and other speakers. Health talks, which are broadcast by radio stations in all parts of the United States, are written or edited and distributed by this division. News releases covering timely subjects relating to public health are sent to the representatives of the press from time to time.

Morbidity Reports

Reports of the prevalence of diseases dangerous to the public health were received during the fiscal year ended June 30, 1925, from officers of the Public Health Service located in all parts of the United States, in the insular possessions, and at many of the principal foreign ports; from State, county, and city health officers in all parts of the United States; from American consuls and consular officers stationed abroad; from the health section of the League of Nations, which now has an extensive organization for the collection and dissemination of information regarding health conditions in all parts of the world; from the health departments of foreign countries; and from the published reports issued at more or less frequent intervals by the health or statistical departments of the principal nations of the world and by many provincial governments and municipalities.

The information thus secured is verified whenever possible, digested, or tabulated, and published in the weekly Public Health Reports for the information of officers of the Public Health Service, State and local health officers, and other sanitarians, as required by the act of February 15, 1893.

COLLABORATING AND ASSISTANT COLLABORATING EPIDEMIOLOGISTS

The plan of collecting morbidity reports through officers of State, county, and city health departments, which has been in effect since 1913, has been of great assistance in securing reports of the prevalence of diseases dangerous to the public health. Under present conditions the Public Health Service is obliged to depend upon the cooperation of State and local health officers for much of its knowledge of the prevalence of these diseases, and it is able to offer comparatively little in return for the information furnished by them, which information is essential in the work of preventing the interstate spread of disease.

The appointment of the State health officer or some other official of the State health department as collaborating epidemiologist enables him to collect the necessary data as an officer of the United States Government. Officers of the county and city health departments are appointed as assistant collaborating epidemiologists. The plan is now in operation in 43 States, and the Public Health Service is ready to extend it to other States which are willing to cooperate and able to secure reports which will be of value to the Federal Government.

The following table shows the States which have adopted the plan in whole or in part, and the number of persons in each State who have received appointments as officers of the Federal Government for the purpose of collecting data concerning communicable diseases.

Collaborating and assistant collaborating epidemiologists as of June 30, 1925

State	Collaborating epidemiologists	Assistant collaborating epidemiologists
Alabama	1	27
Arizona	1	14
Arkansas	1	205
California	1	284
Colorado	1	218
Connecticut	1	0
Delaware	1	0
Florida	1	6
Georgia	1	27
Idaho	1	0
Illinois	1	103
Indiana	1	536
Iowa	1	314
Kansas	1	116
Kentucky	1	125
Louisiana	1	9
Maine	1	477
Maryland	1	78
Massachusetts	1	0
Michigan	1	2
Minnesota	1	1
Mississippi	1	83
Missouri	1	119
Montana	1	0
Nebraska	1	96
New Jersey	1	0
New Mexico	0	26
North Carolina	1	108
North Dakota	1	86
Ohio	1	165
Oklahoma	1	78
Oregon	1	103
South Carolina	1	0
South Dakota	1	63
Tennessee	1	10
Texas	1	321
Utah	1	34
Vermont	1	10
Virginia	1	29
Washington	1	20
West Virginia	1	107
Wisconsin	1	230
Wyoming	1	28
Total	42	4,258

STATE MORBIDITY REPORTS

State health officers report the cases of notifiable diseases in their States weekly by telegraph, monthly, and annually.

WEEKLY TELEGRAPHIC REPORTS

During the fiscal year 1925, 38 States and the District of Columbia reported weekly by telegraph the prevalence of the more important communicable diseases. The reports are preliminary and subject to correction by the addition of later returns.

The following States sent these telegraphic reports:

Alabama.
Arizona.
Arkansas.
California.
Colorado.
Connecticut.
Delaware.
District of Columbia.
Florida.
Georgia.
Illinois.
Indiana.
Iowa.
Kansas.
Louisiana.
Maine.
Maryland.
Massachusetts.
Michigan.
Minnesota.
Mississippi.
Missouri.
Montana.
Nebraska.
New Jersey.
New Mexico.
New York.
North Carolina.
North Dakota.
Oklahoma.
Oregon.
South Dakota.
Texas.
Vermont.
Virginia.
Washington.
West Virginia.
Wisconsin.
Wyoming.

MONTHLY STATE REPORTS

Forty-four States, the District of Columbia, and the Territory of Hawaii furnished detailed reports each month of the prevalence of communicable diseases. A summary of each report is published in the Public Health Reports upon receipt. The following States sent these monthly reports during the fiscal year ended June 30, 1925:

Alabama.
Arizona.
Arkansas.
California.
Colorado.
Connecticut.
Delaware.
District of Columbia.
Florida.
Georgia.
Hawaii (Territory of).
Idaho.
Illinois.
Indiana.
Iowa.
Kansas.
Louisiana.
Maine.
Maryland.
Massachusetts.
Michigan.
Minnesota.
Mississippi.
Missouri.
Montana.
Nebraska.
New Jersey.
New Mexico.
New York.
North Carolina.
North Dakota.
Ohio.
Oklahoma.
Oregon.
Pennsylvania.
Rhode Island.
South Carolina.
South Dakota.
Tennessee.
Utah.
Vermont.
Virginia.
Washington.
West Virginia.
Wisconsin.
Wyoming.

ANNUAL STATE MORBIDITY REPORTS

Annual summaries of the cases of notifiable diseases and deaths charged to these diseases in each State are prepared and issued each year. Unfortunately the necessary data are not available for some of the States until late in the following year, and the issuance of the publications is always delayed.

These annual summaries show, for each disease included in the tables, the number of cases and deaths and also the "estimated expectancy" in each State, by months. The estimated expectancy is computed by ascertaining the number of cases which occurred in the State each month during the preceding nine years, omitting epidemics.

CITY REPORTS

Weekly reports from 105 cities in all parts of the United States, giving the number of cases of the principal communicable diseases and deaths from these diseases, were published during the fiscal year. The aggregate population of these cities was about 29,000,000, and they are as widely distributed geographically as possible.

Weekly reports are also received from 455 other cities in the United States having over 10,000 population.

The following table shows the number of cities in each State from which weekly reports were received:

Alabama	6
Arizona	2
Arkansas	3
California	19
Colorado	6
Connecticut	13
Delaware	1
District of Columbia	1
Florida	3
Georgia	8
Idaho	1
Illinois	32
Indiana	22
Iowa	13
Kansas	13
Kentucky	6
Louisiana	2
Maine	8
Maryland	3
Massachusetts	58
Michigan	22
Minnesota	9
Mississippi	0
Missouri	7
Montana	5
Nebraska	3
Nevada	1
New Hampshire	7
New Jersey	34
New Mexico	1
New York	38
North Carolina	7
North Dakota	2
Ohio	43
Oklahoma	2
Oregon	2
Pennsylvania	77
Rhode Island	8
South Carolina	3
South Dakota	2
Tennessee	4
Texas	10
Utah	2
Vermont	2
Virginia	10
Washington	10
West Virginia	9
Wisconsin	20
Wyoming	0
Total	560

Two annual publications are issued giving information of the prevalence of communicable diseases in cities. One includes all cities in the United States having more than 100,000 population. The other publication includes all of the cities between 10,000 and 100,000 population for which the required information can be secured.

Both publications give the number of cases of each of the principal communicable diseases in each city, the "estimated expectancy" based on the experience of the preceding nine years, and the number of deaths from each of these diseases for the year.

INTERSTATE RECIPROCAL NOTIFICATION

Several years ago the Public Health Service prepared a blank for use by State health officers in notifying the health departments of other States of the movements of persons suffering from communicable diseases or who had been exposed to or were carriers of such diseases, and who traveled from one State to another. Copies of these notices are sent to the Public Health Service. The information is sometimes of great value and an increasing number of State health officers are using these blanks.

REGISTRATION AREA FOR COMMUNICABLE DISEASES

In order to secure earlier information of outbreaks of diseases dangerous to the public health, to obtain more reliable statistics of the prevalence of these diseases, and to make the reports from different localities comparable, it is proposed to establish a registration area for communicable diseases. The annual conference of State and Territorial health authorities with the Public Health Service held pursuant to the provisions of section 7 of the act of July 1, 1902, has for several years urged the establishment of such an area. At the conference held in Washington, June 1 and 2, 1925, a resolution was adopted requesting the Surgeon General to establish a morbidity area, "details of the plan to be worked out as experience shall dictate."

It has been proposed to adopt standards of morbidity reporting for the principal communicable diseases, and to admit to the registration area States, counties, cities, and other units which are able to furnish reports which meet the requirements. Units not included at first are to be added as soon as they qualify.

This plan, if properly carried out, will give information of outbreaks of disease much earlier and with much more certainty than it can be obtained at present. It will also furnish reasonably accurate statistics of the prevalence of diseases which menace the public health in different parts of the country, and make the reports from the several localities comparable. The necessity for this information is realized by all health officers, Federal, State, and local, who are charged with the duty of protecting the people of their several jurisdictions from the introduction or spread of preventable diseases.

FOREIGN REPORTS

During the fiscal year ended June 30, 1925, the Public Health Service received reports of the prevalence in foreign countries of diseases dangerous to the public health from officers of the service stationed in foreign countries, from American consular officers located in all parts of the world, from the health section of the League of Nations. and from foreign Governments and municipalities. All available sources of information are utilized, but in many countries the reporting of diseases and the registration of deaths are incomplete, and it is not possible to obtain the information desired from many parts of the world.

The health section of the League of Nations inaugurated a system of collecting information from ports in the Far East by cable. The data are received by the far eastern bureau of the health section at Singapore, Straits Settlements, and transmitted to the headquarters at Geneva, Switzerland, by wireless. This system enables the Public Health Service to publish information from the principal Asiatic ports several weeks earlier than heretofore.

The International Sanitary Convention, signed at Habana, Cuba, November 14, 1924, ratified by the United States Senate February 23, 1925, has as two of its objects "the standardization of the collection of morbidity and mortality statistics by the signatory Governments" and "the stimulation of the mutual interchange of information which may be of value in improving the public health and combating the diseases of man." The practical working of the code which is embodied in the convention should in time give to all the nations of the Western Hemisphere much better knowledge of sanitary conditions and the prevalence of preventable diseases than it is now possible to secure.

PREVALENCE OF DISEASE

Health conditions during the year 1924 were, in general, good throughout the United States.

An outbreak of plague in Los Angeles, Calif., resulted in 41 cases and 34 deaths. Rodent plague was discovered in New Orleans, La., but no human case was reported as originating there.

The following table gives a summary of the cases of certain communicable diseases and deaths from these diseases reported for the year 1924 by the health officers of 35 States:

	Number of States reporting [1]	Aggregate population	Cases reported	Deaths reported	Cases per 100,000 population	Deaths per 100,000 population	Deaths per 100 cases
Cerebrospinal meningitis	24	62, 750, 644	1, 212	498	1. 9	0. 8	41. 1
Chicken pox	35	88, 468, 922	187, 314	113	211. 7	. 1	. 1
Diphtheria	35	88, 468, 922	107, 124	8, 186	121. 1	9. 3	7. 6
Influenza	35	88, 468, 922	----------	14, 916	----------	16. 9	----------
Malaria	29	82, 493, 406	----------	1, 922	----------	2. 3	----------
Measles	35	88, 468, 922	436, 649	5, 769	493. 6	6. 5	1. 3
Mumps	28	73, 422, 176	108, 515	67	147. 8	. 1	. 1
Pellagra	25	66, 260, 009	----------	1, 588	----------	2. 4	----------
Pneumonia (all forms)	35	88, 468, 922	----------	87, 194	----------	98. 6	----------
Poliomyelitis	29	78, 786, 537	4, 912	928	6. 2	1. 2	18. 9
Scarlet fever	35	88, 468, 922	165, 446	2, 680	187. 0	3. 0	1. 6
Smallpox	35	88, 468, 922	45, 120	845	51. 0	1. 0	1. 9
Tuberculosis (pulmonary)	31	85, 028, 428	----------	65, 006	----------	76. 5	----------
Tuberculosis (all forms)	35	88, 468, 922	----------	78, 423	----------	88. 6	----------
Typhoid fever	35	88, 468, 922	27, 816	5, 365	31. 4	6. 1	19. 3
Whooping cough	35	88, 468, 922	150, 264	6, 463	169. 8	7. 3	4. 3

[1] In addition to the number of States given, the District of Columbia is included.

Diphtheria.—The reports indicate that some further progress has been made in controlling the ravages of diphtheria, although many lives are sacrificed each year which might be saved by the use of well-known means of prevention or by timely use of diphtheria antitoxin after the disease develops.

Thirty-five States, having an aggregate population of about 88 millions, reported 107,124 cases of diphtheria in 1924, and 129,461 cases in 1923. The deaths attributed to this disease in these States were 8,186 in 1924 and 10,366 in 1923.

If the diphtheria death rate in 1924 had been the same as the average annual death rate from 1901 to 1905, there would have been 26,186 deaths from diphtheria in these States in 1924. This indicates a saving of 18,000 lives during the year.

Influenza did not take as large a toll of human life during 1924 as it has taken during some recent years. In 35 States influenza and pneumonia were responsible for 102,110 deaths during 1924. In 1923, these States reported 134,398 deaths from these diseases.

Poliomyelitis showed some increased prevalence during 1924. Twenty-seven States reported 4,890 cases of poliomyelitis for that year and 3,065 cases for the year 1923.

The figures for scarlet fever showed an apparent increase of 3 per cent in the number of cases in 1924 and a decrease in the deaths of 12 per cent as compared with 1923. It is possible that better reporting of cases of this disease was responsible for the higher figures for cases in the later year.

Smallpox.—Thirty-five States reported 45,120 cases of smallpox with 845 deaths for the calendar year 1924, and 25,789 cases with 116 deaths for the year 1923. In 1924 the number of cases increased 75 per cent over the number for 1923, but the increase in deaths was 628 per cent. The higher death rate was not evenly distributed throughout the country. Most of the deaths occurred in outbreaks of virulent smallpox which gained a footing in certain communities.

In general for 20 years or more smallpox in the United States has been comparatively mild, and even when there were large numbers of cases the deaths were relatively few. The history of the year 1924, however, shows that the disease may be very destructive to human life in a community where the people are not protected by vaccination and revaccination.

The following table shows the record for the last three years in the six large cities of the United States which had the highest fatality rates in 1924. In these cities during 1922 and 1923 there were 1,617 cases of smallpox, with only one death, while in 1924, 3,544 cases of smallpox in the same cities resulted in 466 deaths, or one death for each eight cases. In three of these cities there was more than one death from smallpox for each 5 cases of the disease.

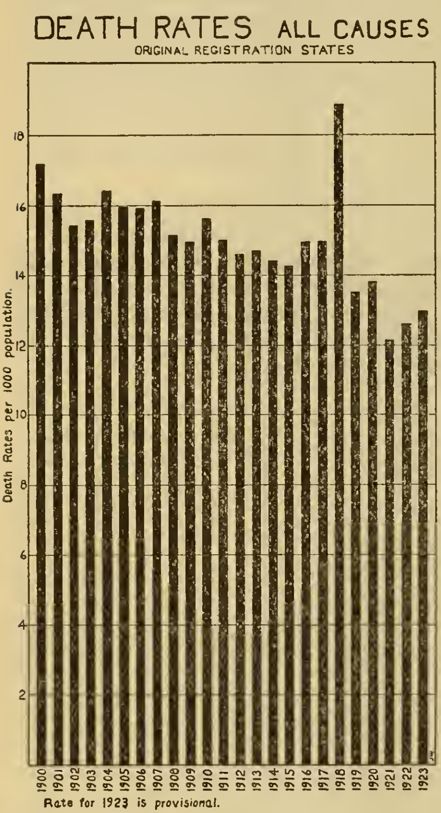
	1922	1923	1924
Camden, N. J.:			
Cases reported	0	0	47
Deaths registered	0	0	14
Deaths per 100 cases	0	0	29.8
Detroit, Mich.:			
Cases reported	85	256	1,610
Deaths registered	0	0	163
Deaths per 100 cases	0	0	10.1
Duluth, Minn.:			
Cases reported	189	240	228
Deaths registered	0	0	13
Deaths per 100 cases	0	0	5.7
Minneapolis, Minn.:			
Cases reported	268	191	993
Deaths registered	1	0	221
Deaths per 100 cases	.4	0	22.3
Pittsburgh, Pa.:			
Cases reported	4	19	107
Deaths registered	0	0	24
Deaths per 100 cases	0	0	22.4
Toledo, Ohio:			
Cases reported	129	236	559
Deaths registered	0	0	31
Deaths per 100 cases	0	0	5.5
Total—6 cities:			
Cases reported	675	942	3,544
Deaths registered	1	0	466
Deaths per 100 cases	.1	0	13.1

The reports from 35 States for the year 1924 indicated a continuance of the favorable trend in the death rate from tuberculosis. In these States 78,423 deaths from tuberculosis were registered in 1924. This is only 29 deaths less than the preceding year, but the increase in the population makes a difference in the death rate of 1.5 per cent, from 90 per hundred thousand in 1923 to 88.6 in 1924.

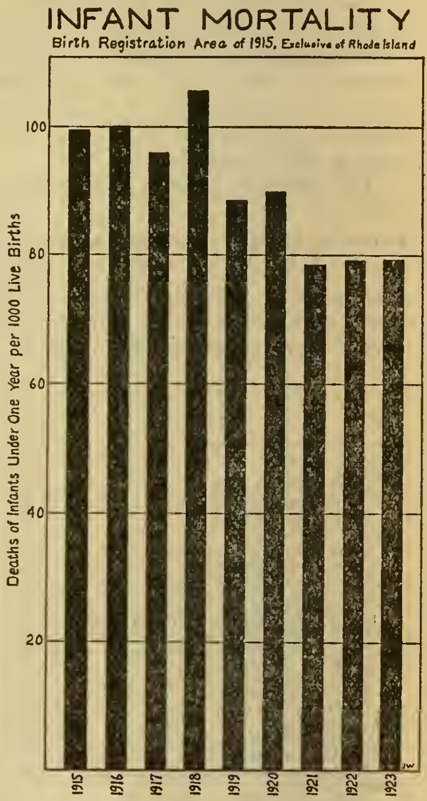
Reports from 35 States indicated a slight reaction from the steady decline in the rates for typhoid fever which has been recorded for 25 years or more. Thirty-five States reported 27,220 cases of typhoid fever in 1923 and 27,816 cases in 1924. This increase is slightly greater than the estimated increase in the population.

Whooping cough was given as the cause of 6,463 deaths in 35 States during 1924. In 1923 these States reported 7,837 deaths from this disease.

The accompanying charts indicate the progress which has been made during 24 years in reducing the death rates from certain diseases in the United States. They also give evidence of the fact that some other diseases present problems which have not as yet been solved.



Rate for 1923 is provisional.

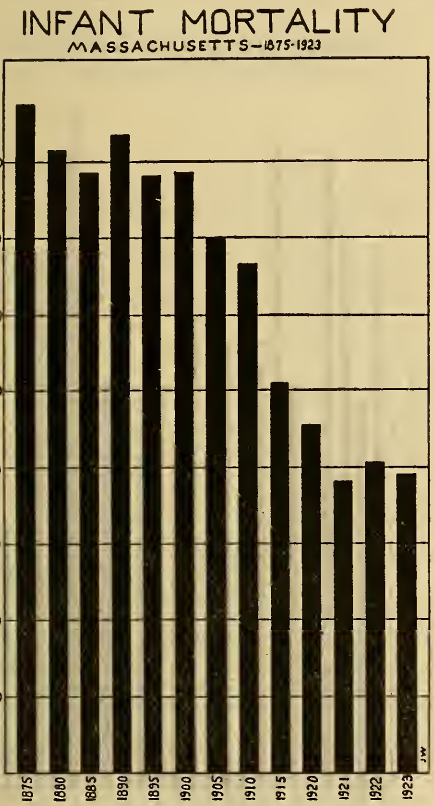


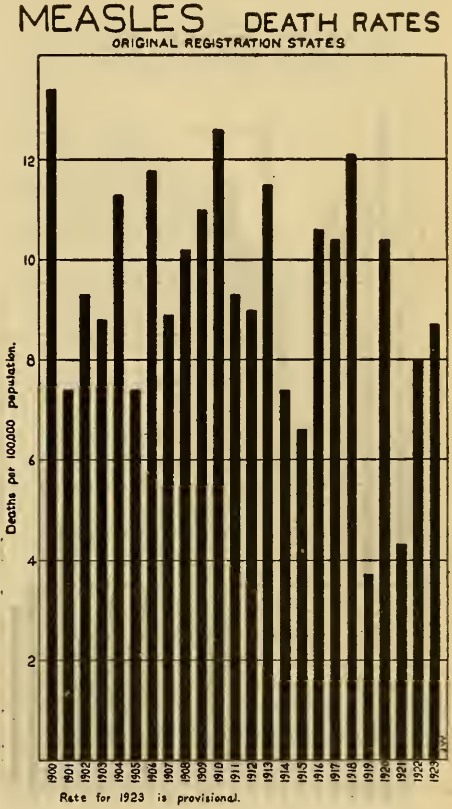
Death rates from all causes in the original registration States show a decrease from 17.2 per hundred thousand in 1900 to 12.9 in 1923. The sudden rise to 18.9 in 1918 shows the influence of the epidemic of influenza during that year.

Typhoid fever, tuberculosis, diphtheria, and scarlet fever show remarkable improvement during the 24-year period, while deaths from cancer and from automobile accidents increased. One of the most encouraging features shown by these charts is the reduction in infant mortality; that is, deaths of infants under one year of age per thousand births. For the birth registration area data are available only since 1915, but the Massachusetts records are available over a much longer period.

DISEASES IN FOREIGN COUNTRIES DURING 1924

Cholera.—During the calendar year 1924 cholera was largely confined to Asia and adjacent islands. British India reported more than 276,00 deaths from this disease for the year. In 1923, 73,000, deaths from cholera were reported in British India.


INFANT MORTALITY
MASSACHUSETTS—1875-1923


MEASLES DEATH RATES
ORIGINAL REGISTRATION STATES

Rate for 1923 is provisional.

Thirty-one deaths from this disease occurred in the Philippine Islands during 1924.

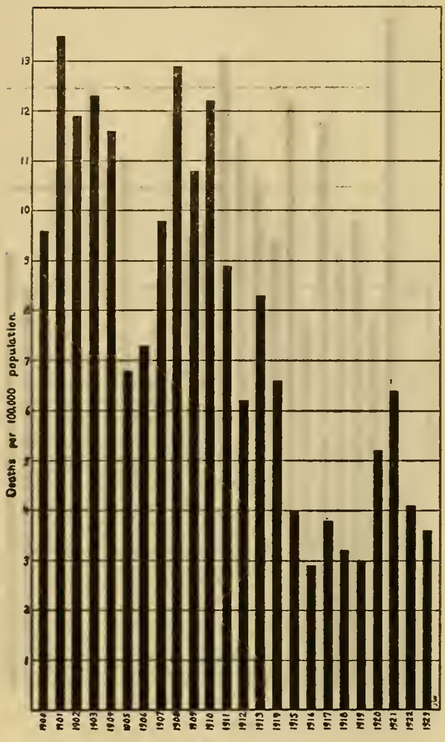
Plague.—Reports of plague were received from nearly all parts of the world. As usual, by far the greatest number of cases and deaths were recorded in Asia, nearly 378,000 deaths from this disease being registered in British India, and 26,000 deaths in the Dutch East Indies. Wherever commerce goes, plague is likely to be carried, and this disease appears at many ports throughout the world.

Smallpox.—Reports of smallpox were received during 1924 from 62 countries or dependencies. Two hundred and eighteen thousand cases with 50,000 deaths were recorded, but the reports from many localities are not complete and the actual numbers are much higher.

Typhus fever.—The year 1924 showed improved conditions in many countries in the prevalence of typhus fever. This disease has been called "camp fever," and frequently causes many deaths during or following a war. During 1924 it was reported by 29 countries or dependencies, and the incomplete reports totaled more than 136,000 cases. This is about half the number reported for 1923.

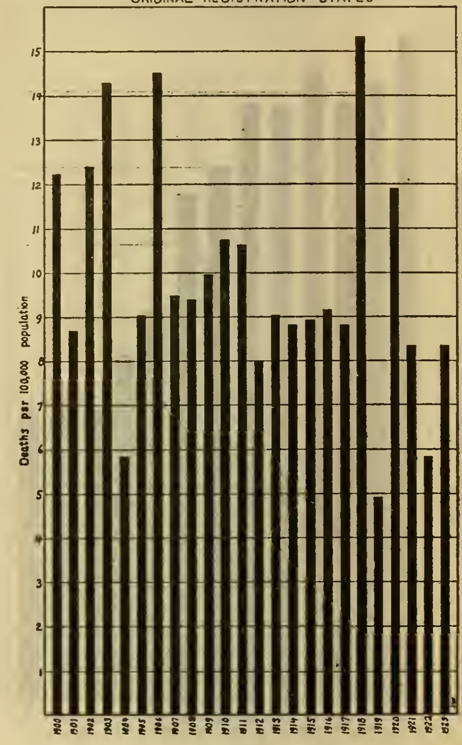
Yellow fever.—The only reports of yellow fever during the calendar year 1924 came from Central and South America and Western Africa.

SCARLET FEVER Death Rates
ORIGINAL REGISTRATION STATES



Rates for 1922 and 1923 are provisional.

WHOOPING COUGH—Death Rates
ORIGINAL REGISTRATION STATES



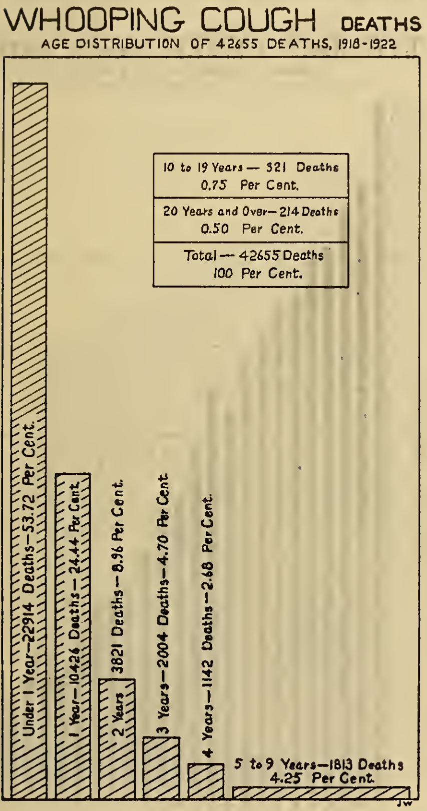
Rates for 1922 and 1923 are provisional.

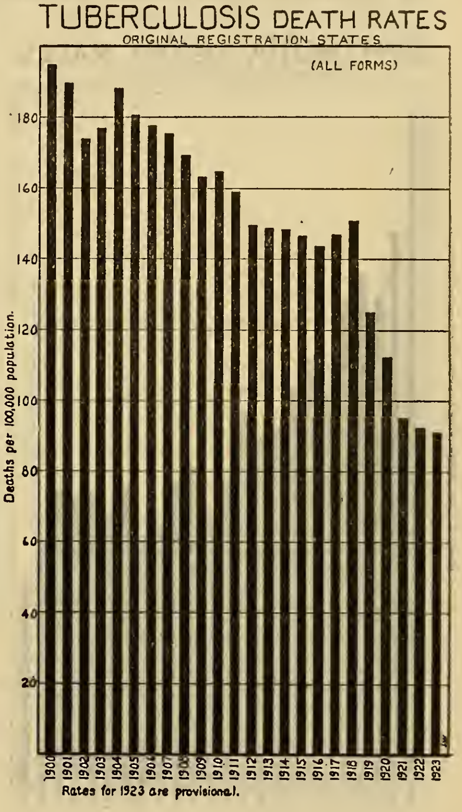
Only six countries recorded the presence of the disease, and the number of cases was not large. Even when allowance is made for the incompleteness of the reports, it is evident that substantial progress has been made toward the control of yellow fever.

SANITARY LEGISLATION AND DECISIONS

State and Federal laws and regulations.—During the fiscal year the compiling of State and Federal laws and regulations pertaining to public health was continued. In this work the laws and regulations for each calendar year are compiled and published in separate volumes. During the period under review the completed volumes containing the sanitary laws and regulations for the years 1921 and 1922 were received from the printing office, and the material for the years 1923 and 1924 was sent to the printing office. Also, work on the 1925 compilation was begun.

Municipal ordinances and regulations.—Public health ordinances and regulations adopted during 1924 by cities in the United States having a population of more than 10,000 in 1920 were collected for the purpose of publication in a volume of municipal public health legislation to cover the three-year period 1923–1925.





Court decisions.—The Public Health Service has for several years published in the Public Health Reports abstracts of current public health decisions rendered by State and Federal courts of last resort. The publication of these current abstracts was continued during the present fiscal year and work begun on the preparation of a digest of the decisions appearing in the Public Health Reports. It is proposed to cover the seven-year period 1919–1925 in the digest.

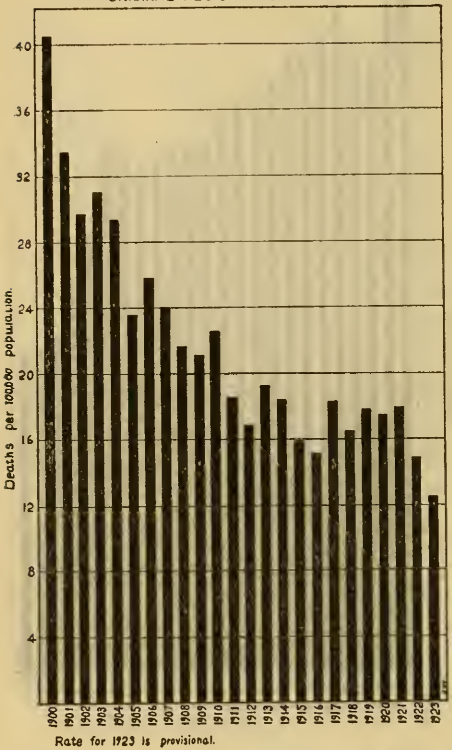
Comptroller General's decisions.—The collection and abstracting currently of decisions of the Comptroller General of the United States relating to the Public Health Service has been done throughout the year. This work is done for possible subsequent publication for the information of the personnel of the Public Health Service.

Requests for information.—Requests were received during the year for information concerning laws, regulations, and court decisions on specific public health subjects. These requests were complied with as fully as possible.

PUBLICATIONS ISSUED BY THE DIVISION

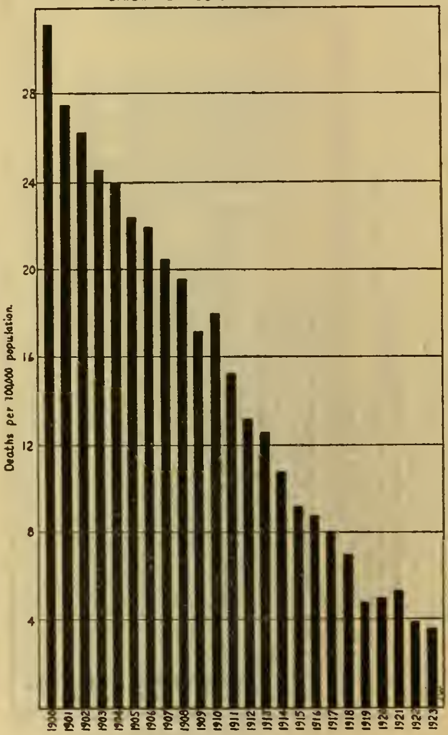
Public health and sanitary data are of the utmost value only as they are disseminated and used, and the publishing and dissemination of morbidity information by the Public Health Service was made obligatory by law in 1878 and by subsequent acts as well as by international treaties. The Public Health Reports, the medium of the service for the publication of such data, was issued each week during the fiscal year (vol. 39, pt. 2, and vol. 40, pt. 1). It contained 3,094 pages, exclusive of title-pages, tables of contents, and indexes, as compared with 3,245 during the preceding fiscal year, and with 3,139 pages during the fiscal year 1923. Approximately one-half of this material consisted of current morbidity reports collected from various sources—domestic and foreign—compiled in the division, and printed in tabular form. The remainder consisted of special reports of research work in the various fields of sanitary and related sciences, abstracts of court decisions relating to the public health,

DIPHTHERIA DEATH RATES
ORIGINAL REGISTRATION STATES



Rate for 1923 is provisional.

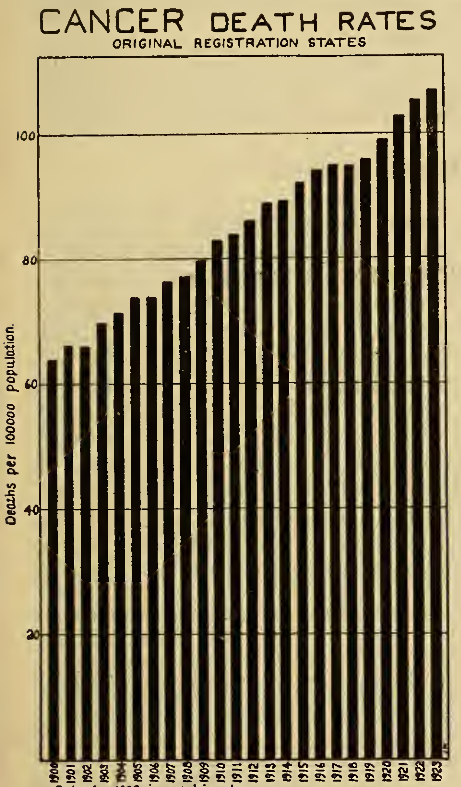
TYPHOID FEVER DEATH RATES
ORIGINAL REGISTRATION STATES



Rates for 1923 are provisional.

and other articles dealing with subjects of especial interest to public health authorities, sanitarians, and public health workers generally. The Public Health Reports, originally "Bulletins of the Public Health," has been issed since 1878.

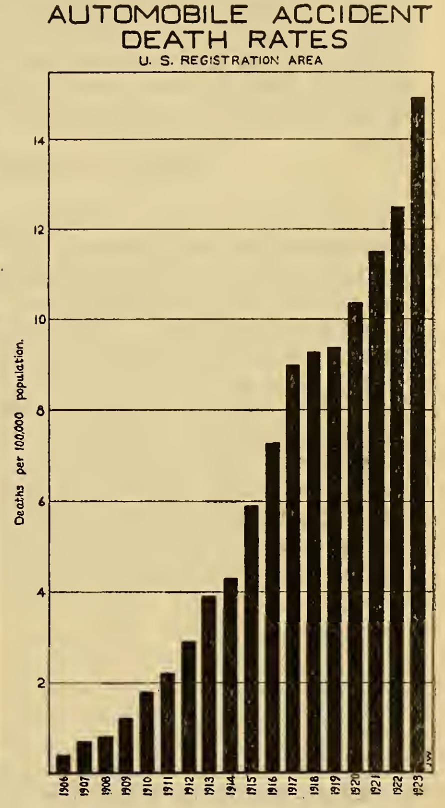
Ninety of the text articles (comprising 1,348 pages) were issued separately as reprints during the fiscal year, affording economical distribution to persons entitled by law to receive these publications. Revised editions of 25 previously issued reprints and of three supplements were published.



CANCER DEATH RATES

ORIGINAL REGISTRATION STATES

Rate for 1923 is provisional.



AUTOMOBILE ACCIDENT DEATH RATES

U. S. REGISTRATION AREA

Four new supplements to the Public Health Reports were printed during the year: Supplement No. 45, Compilation of State sanitary laws and regulations enacted or adopted during 1921 (708 pages); Supplement No. 47, A similar compilation for the year 1922 (213 pages); Supplement No. 48, A comprehensive review of the literature on influenza and the common cold (62 pages); Supplement No. 50, Report on a typhoid fever outbreak by oyster-borne infection (102 pages).

SECTION OF PUBLIC HEALTH EDUCATION

During the fiscal year ended June 30, 1925, 123 new publications were issued, as compared with 109 during the preceding year. The total number of copies of these publications and of reprints of previous documents distributed aggregated 379,957, as compared with 527,614 during the preceding fiscal year. The smaller distribution was due principally to the reduction in the size of the editions. The 379,957 publications sent in response to 25,447 public requests do not include those printed and distributed by the division of venereal diseases.

There were 57 requests for the loan of stereopticon slides during the year. A total of 4,560 slides were loaned to universities, officials of the Public Health Service, sanitarians, and others, in response to these requests. The work of the stereopticon library has been greatly handicapped during the past few years, owing to the shortage of slides and to the lack of funds for making new slides and replacing those which have been broken in transit.

The section has received many requests for the loan of exhibit material, posters, mats, and motion pictures, but because of the lack of funds, compliance with most of these requests has been impossible.

Health Information by Radio

In December, 1921, the Surgeon General inaugurated the practice of preparing and radiocasting talks on health topics rendered in popular language. In the beginning, only one station was used, namely, that of the Navy Department, at Anacostia, NOF, later transferred to NAA, at Arlington. Immediately upon the inauguration of this work, commercial stations began to request the privilege of broadcasting these lectures, and at the present time 46 stations throughout the United States are using them regularly in their programs. By the close of the fiscal year 1925, 270 of these lectures had been issued.

In March, 1922, the Foreign Language Information Service, of New York City, began the translation of these talks into other languages than English, and to submit them for publication to the magazines and newspapers using its service. In addition, many English-speaking magazines and newspapers have published these lectures.

DIVISION OF MARINE HOSPITALS AND RELIEF

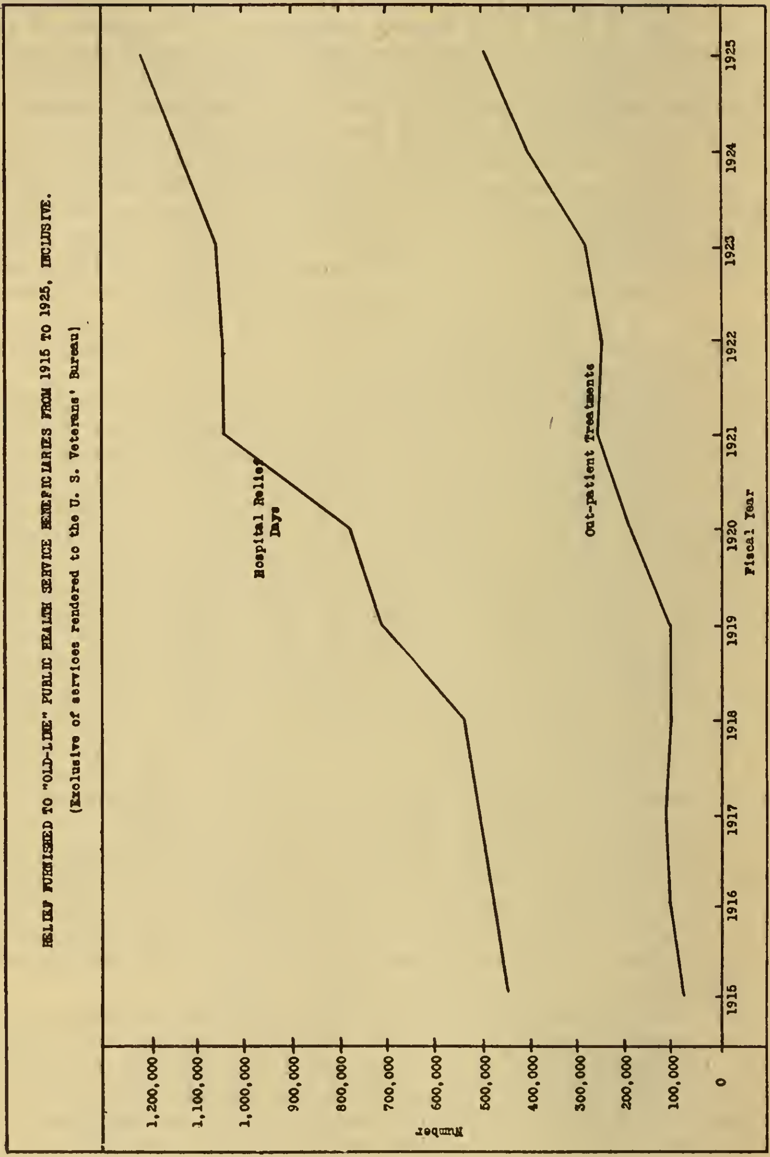
In charge of Asst. Surg. Gen. F. C. Smith

An increasing demand for medical relief and the economies necessary to meet it have been serious problems. The growth of relief activities in recent years is shown in Figure 1 and Table 1, respectively. The general increase over the last fiscal year amounted to 8.9 per cent in hospital relief days and 22.3 per cent in outpatient treatments. The increase at marine hospitals alone amounted to 10.9 per cent in hospital days. At the same time the average per diem cost of operation in the marine hospitals was reduced from $3.89 to $3.80, a point considered by some authorities to be below the minimum compatible with full efficiency. It is lower than the average per diem costs in hospitals of the Army, Navy, or Veterans' Bureau. It is far below that of representative private hospitals furnishing service of similar character. It is not believed practicable or desirable, while commodities and salaries maintain their present levels, to attempt further reduction in hospital operating costs.

The marine hospitals have continued to be a second line of defense against the introduction of exotic diseases. This fact was illustrated during the year by the diagnosis of plague in a seaman admitted to hospital from a foreign ship entering New Orleans. The contagious wards at Ellis Island are also valuable adjuncts to the quarantine facilities in New York. Typhoid fever, of which there were 138 cases, is, whenever found in a marine hospital or other relief station, instantly reported by telegraph for the special epidemiological study made by the service, which routinely includes an investigation of the drinking water and other sanitary conditions aboard the ship concerned. A very large percentage of service patients (hospital and dispensary) have venereal infection, and it is evident that, by their treatment and segregation, a considerable contribution is made to the general campaign against these diseases. Approximately 30,000 such patients were treated during the year, and for syphilis alone, 36, 569 intravenous doses of salvarsan or other arsenical were administered. For lepers segregated at Marine Hospital No. 66, Carville, La., 82,328 patient days were furnished, and for tuberculous beneficiaries at Fort Stanton, N. Mex., and other hospitals approximately 215,000 patient days. A very large number of persons (13,531 in the District of Columbia alone) were vaccinated against smallpox, and the aggregate number of those vaccinated against typhoid fever and smallpox at all relief stations of the service amounted to 31,356.

Effort has been continued to maintain suitable standards in the various marine hospitals, and the American College of Surgeons, which was invited to classify them, has found that all those so far inspected will qualify for the approved list, provided some additional equipment and personnel for a designated few are supplied. The Public Health Service, in its turn, responded to a request made by the secretary, department of welfare, Pennsylvania, by supplying service officers skilled in hospital administration to inspect a group of 10 State-owned general hospitals. Measures were outlined for the reorganization and standardization of these institutions.

FIG. 1.



RELIEF FURNISHED TO "OLD-LINE" PUBLIC HEALTH SERVICE BENEFICIARIES FROM 1915 TO 1925, INCLUSIVE.

(Exclusive of services rendered to the U. S. Veterans' Bureau)

The Merchant Seaman

It is a common observation that the seaman applying for relief at marine hospitals improves in economic and social status from year to year. There is little occasion for disciplinary measures. The old-time sailor is by no means extinct, and men who contributed 40 cents per month, the sum levied by the Government upon all merchant seamen up until 1885 for the construction and support of marine hospitals, still apply for treatment, as did their sailor fathers and grandfathers before them. Usually the patient is away from his home when he applies at a hospital for treatment, but not always, since more seamen have homes than formerly and, steam having replaced sail, the voyages are shorter and he more frequently returns to his home port. He is better paid and better dressed than formerly, although in comparing clinical records of 100 years ago with those now current, it is found that, except for the absence of scurvy and, lately, typhoid fever, the character of his disease has not greatly changed. Venereal disease still heads the list of disabilities (see p. 238, Table No. 7, "Number of days in hospital, for patients discharged during fiscal year 1925") and called for 163,560 hospital days' treatment during the past year, or more than one-sixth of the total.

Greater numbers of seamen than ever before are applying for hospital and outpatient treatment. This is due to the increasing tonnage of the merchant marine, to a higher degree of intelligence, which prompts a patient to seek treatment for disabilities formerly neglected; to the increasing expense of hospital care, which formerly was frequently available as a public charity; and also in no small degree to the fact that the character of medical and surgical service provided by the Public Health Service has improved to keep pace with the times. There has probably never been a time when Government medical and surgical aid was more valuable to the development of the American merchant marine, nor more necessary to the welfare of seamen, than now.

United States Coast Guard

Surg. J. M. Gillespie has been continued as medical aid to the commandant, United States Coast Guard Headquarters, and acts as liaison officer with the Public Health Service. He was able last year to forecast with great accuracy the amount of relief work required in 1925 and estimates a still further increase amounting to $180,000 in the fiscal year 1926.

The Coast Guard personnel, for which the Public Health Service furnishes all medical services, totaled 9,359 on June 30, 1925, or approximately double that of a year ago. The relief supplied amounted to 60,336 hospital days, 90,494 outpatient treatments, and 13,394 physical examinations, an increase of 23,832 hospital days (65 per cent), 44,637 outpatient treatments (97 per cent), and 6,377 physical examinations (92 per cent). All medical and surgical supplies are furnished to cutters and all other Coast Guard units. Twenty medical and dental officers were detailed to exclusive duty for service aboard cruising cutters and at important shore stations, while 99 contract physicians furnished relief exclusively for personnel at isolated stations.

The amount of medical attention required by Coast Guard personnel was, for the last three years, per man (in terms of the whole corps), as follows:

	Hospital days	Out-patient treatment	Physical examinations
1923	8.9	5.9	0.9
1924	7.6	9.4	1.5
1925	10.9	12.8	1.9

The increase per man is due to the fact that physical requirements for the special temporary personnel now being taken into the Coast Guard are not as high as those for the regular corps.

The above is not an excessive amount of medical attention for a military organization of exacting requirements and scrupulous in the treatment and prophylaxis of disease. American merchant seamen, who number approximately 242,000 and whose opportunity to secure relief and the incentive to seek it, are probably not equal to those of Coast Guard personnel, received in 1925, 3.4 hospital days and 0.86 outpatient treatments per man.

United States Employees' Compensation Commission

Civil employees of the United States injured in line of duty continue to be one of the major classes of beneficiaries of the Public Health Service, which is the principal medical agent of the commission. The number of such patients treated increased 23 per cent over last year and they called for 55,580 hospital days, 124,367 outpatient treatments, and 7,341 physical examinations. One out of every five of all patients treated at marine hospitals and other relief stations is a beneficiary of this class.

Lighthouse Service

The relief furnished the Lighthouse Service varies but slightly from year to year. An increase, however, of 10.7 per cent in hospital days' relief is noted, and 1,447 beneficiaries and pay patients of the Lighthouse Service were given 10.963 hospital days' relief, 2,823 outpatient treatments, and 212 physical examinations. It is anticipated that an increase in this relief will take place during the fiscal year 1926 for the reason that the Secretary of the Treasury has approved the furnishing of medical relief to keepers and assistant keepers of the Lighthouse Service situated near Coast Guard stations where contracts are in force with local physicians to furnish medical services. This additional relief, which will reach 199 lighthouse stations remote from marine hospitals and other relief stations, is estimated to cost $4,000 per year.

Veterans' Bureau

The Public Health Service continued to represent the Veterans' Bureau in Porto Rico and the Virgin Islands, and, during the major portion of the year, in the Canal Zone. A daily average of 255 patients of the Veterans' Bureau were treated, chiefly at the marine hospitals located at Buffalo, Pittsburgh, Savannah, Detroit, Cleveland, Evansville, Louisville, and New Orleans. The rates charged for relief were $3.50 per inpatient day, $1 per outpatient treatment, and $5 for physical and mental examinations to determine compensability or feasibility for training.

In addition to the regular relief facilities of the Public Health Service utilized by the Veterans' Bureau, instructions were issued at the beginning of the year 1925 to officers stationed in Europe and other foreign countries to conduct medical examinations of beneficiaries of the Veterans' Bureau residing abroad, upon the request of consular officers. There are 32 such officers available for this work, who are located in 18 different countries.

It is desired to acknowledge courtesies received, particularly those where, as at Pittsburgh and Memphis, members of the regional office staff act as consultants to the marine hospitals, and to quote the following excerpt from a letter received after the close of the fiscal year from the United States Veterans' Bureau:

> I believe it quite in order again to reiterate the appreciation of this bureau for the splendid cooperation that your service has at all times shown in all directions in regard to the problems that confront the bureau in its large field of activities.

United States Shipping Board

Cooperative arrangements in the interest of health and efficiency have continued at Mobile, New Orleans, and Galveston for the physical examination aboard ship of crews of Shipping Board vessels immediately prior to sailing. Seamen who are rejected are in a position to obtain immediate treatment, and the vessels are relieved of men who would spread disease or who may be incapacitated during the voyage. The standard list of medical and surgical supplies, designed by the Public Health Service for ocean-going vessels, was adopted by the Shipping Board. The relief station aboard the laid-up fleet in the James River near Camp Eustis, Va., was continued.

Bureau of Internal Revenue

PROHIBITION UNIT—NARCOTICS AND ALCOHOLIC LIQUORS

Service officers have served on numerous committees formed by the Federal Narcotic Control Board at various places throughout the United States. Under date of January 9, 1924, the Assistant Secretary of the Treasury approved a plan initiated by the secretary of the Federal Narcotic Control Board to appoint committees at Boston, New York, Buffalo, Chicago, New Orleans, Jacksonville, Seattle, San Francisco, Los Angeles, and other places for the purpose of examining, weighing, inventorying, and destroying narcotic drugs seized or forfeited under the provisions of the regulations under the narcotic and export act, the committees to consist of an officer of the Public Health Service, a customs officer, and an internal-revenue officer. This formed the basis for Treasury Decision No. 29972, dated January 25, 1924. Subsequently, committees were formed at Seattle, New Orleans, New York, San Francisco, and Washington, D. C. Service officers have continued as authorized by Department Circular No. 48, of June 21, 1915, to review and certify applications for the purchase of narcotic drugs for various Government vessels and merchant ships that do not carry physicians registered under the act of December 17, 1914. The service is represented on the Treasury Department Committee for the Disposition of Narcotic Drugs, acting under section 1008 of the act of February 21, 1919, amending the act of December 17, 1914.

Designated medical officers have continued to issue certificates of medicinal liquor for vessels, both American and foreign, in accordance with Treasury Decision No. 3484, approved June 2, 1923. Only such spirituous and vinous liquors may be authorized for use on foreign vessels within American territorial waters as are allowed for medicinal uses in the United States. Beers and all forms of malt liquors are thus excluded.

ATTENDING SPECIALISTS

The number of attending specialists was increased to 156, of whom 67 are salaried, 61 are paid on a fee basis, and 28 serve as a courtesy at $1 per year. In addition, there are three consultants at large on leprosy. It would not be possible to furnish the best medical and surgical care in cases calling for unusual knowledge and skill without the attending specialists. Their employment is, moreover, a matter of economy by making it unnecessary, especially at the smaller hospitals, to maintain a full-time staff of medical officers representing all the specialties.

The following shows the number of attending specialists employed in the respective designations:

	Marine hospitals	Other relief stations		Marine hospitals	Other relief stations
Anesthetist	1	--------	Nervous and mental	--------	1
Chest	3	--------	Neuropsychiatry	11	1
Chemical bacteriology and pathology	1	--------	Nose and throat	2	--------
Dermatology	8	--------	Neurology	4	--------
Dental surgery	1	--------	Neurosurgery	2	--------
Ear, nose, and throat	8	1	Orthopedics	13	1
Eye, ear, nose, and throat	4	7	Ophthalmology	8	--------
Eye	3	1	Physiotherapy	1	--------
Eye and ear	1	--------	Pathology	1	--------
General surgery	22	5	Proctology	1	--------
Genitourinary	9	3	Roentgenology	5	1
Gastrointestinal	1	--------	Stomatology	1	--------
General medicine	1	1	Tropical medicine	1	--------
General and orthopedic surgery	--------	1	Urology	5	--------
Immunology	1	--------	Urology and pathology	1	--------
Internal medicine	12	--------	Total	133	23
Leprosy	1	--------			

Consolidated clinical laboratory report, fiscal year 1925, United States marine hospitals

Blood:	
Complement fixation—	
Syphilis	33, 096
Gonorrhea	112
Tuberculosis	13
Erythrocyte counts	2, 380
Leucocyte counts	4, 625
Differential leucocyte counts	3, 896
Platelet counts	284
Malaria	2, 304
Typing	204
Blood cultures	724

Blood—Continued.	
Chemical determinations—	
Carbon dioxide (Van Slyke or similar)	19
Creatinine	57
Incoagulable nitrogen	42
Sugar	582
Urea nitrogen	115
Uric acid nitrogen	43
Total nitrogen	64
Hemoglobin	1, 908
Chlorides	32
Unclassified	235
Coagulation time	836
Urine:	
Urinalyses	56, 026
Renal function tests	531
Quantitative sugar	1, 832
Feces:	
Parasites and ova	5, 852
Dysentery	1, 293
Metabolic examinations	19
Occult blood	798
Sputum:	
Tubercle bacillus	27, 079
Pneumococcus	224
Other organisms	127
Stomach or Duodenal contents:	
Routine	774
Special	204
Spinal Fuid:	
Wassermann	659
Colloidal gold reaction	179
Globulin test	551
Cell count	568
Bacteriological examinations	35
Other examinations	6
Bacteriological examinations:	
Pus	541
Exudates	367
Transudates	97
Discharges—	
Urethral	16, 613
Other	1, 509
T. Pallidum—	
Dark field	1, 123
Smear	422
Throat smears	1, 022
Cultures—	
Throat	1, 210
Other	3, 851
Bacteriological counts	86
Typhoid and paratyphoid examinations:	
Agglutination tests	332
Feces	318
Urine	240
Animal inoculations:	
For diagnosis	224
Preparation of immune sera	22
Pathological examinations:	
Autopsies	180
Tissue examinations	592
Vaccines:	
Autogenous	59
Miscellaneous examinations:	
Otherwise unclassified	529
Total examinations	178, 575

Consolidated X-ray report, fiscal year 1925, United States marine hospitals

Total number of patients examined		29, 655
Number of exposures made:		
Bone and joint	24, 855	
Chest	11, 680	
Dental	9, 655	
Gastrointestinal and urogenital tracts	4, 962	
Miscellaneous	4, 278	
Total		55, 430

DENTAL WORK

Dental Surg. (R) C. T. Messner has been continued in general supervision of all dental field operations and in immediate charge of Relief Station No. 360, Washington, D. C. There is now a total of 28 dental officers in the marine hospitals and 31 contract dentists, the latter serving small marine hospitals and other relief stations. By eliminating dental focal infections, the recovery of many patients suffering from diseases related thereto has been expedited. In many other ways the dental operations have demonstrated the vital place which they maitain in the practice of medicine.

During the fiscal year dental relief in marine hospitals alone aggregated 7,315 prophylactic treatments, 17,158 extractions, 3,642 X-rays, 10,961 alloy fillings, 3,932 silicate cement fillings, and 3,962 prosthetic appliances, in addition to the treatment of 38 fractured mandibles for which appliances, splints, etc., were made. The above treatment was rendered by full-time dental officers at a total expense of $124,662.09, which includes salaries of all personnel connected with dental clinics, cost of supplies, repair of equipment and new equipment, and is less than one-half the average commercial rate for the same amount of treatment, which, if rendered on a fee basis, would have totaled $258,431.93. At relief stations where it is not profitable to assign full-time dental officers, contract dentists are employed at prescribed and uniform fees. The medical officer in charge of the relief station may authorize only routine or emergency dental treatment. If the entire expense of dental work, a large part of which is for outpatients, were charged solely to hospital transactions, it would add only 3 cents per day to the per capita cost.

One dental officer is on duty at the Coast Guard Academy, New London, Conn., and during the summer months a dental officer is assigned to the Coast Guard Bering Sea Fleet with an office at Unalaska, Alaska.

PHYSICAL EXAMINATIONS

A physical examination is recorded as such only when a special written report of the same is made to comply with a request from competent authority. Table 3, page 230, shows the various classes of beneficiaries for whom physical examinations were made. There has been a large increase in this class of work, partly because the Coast Guard has practically doubled its personnel in the past year, thus calling for the examination of many recruits, and partly because of increased requirements by the Civil Service Commission, the Bureau of Pensions, Post Office Department, and the Employees' Compensation Commission. With the assumption by the Federal

Government of responsibility for disabilities of its employees arising out of employment (Public No. 267, approved September 7, 1916), and the advent of the retirement act (Public, No. 215, approved May 22, 1920) affecting civil-service employees, there was awakened a realization of the relationship of preexisting physical defects to subsequent accident and sickness. Defective vision, for instance, is well known to predispose to injury among Federal employees in arsenals, navy yards, machine shops, and other mechanical plants. Fallen arches are common causes of disability among mail carriers. Defective hearing slows down the work and also predisposes to injury in certain processes. Preexisting valvular diseases of the heart, hernias, and other anatomical weaknesses require careful placement of employees to avoid disaster which might follow strenuous physical effort, such as strain from lifting. It is understood that an applicant is not often denied employment by the Government by reason of physical defects, although he may be found disqualified for certain kinds of employment. The monetary savings to the Federal Government by the detection of physical defects calculated to become disabling causes are almost incalculable. That physical examination is desired by the employees themselves is shown by the fact that 5,681 men and women already employed in the Post Office Department have voluntarily requested and received complete physical examinations at Public Health Service relief stations in various parts of the country during the past two fiscal years.

The examination for vision, color vision, and hearing of applicants for licenses aboard ship as master, pilot, mate, and engineer is of very great importance, involving as it does the safety of ships and passengers. The same is true of the physical examinations of lighthouse keepers and assistant keepers. To determine the ability of all responsible persons concerned with the merchant marine to differentiate between red and green lights and detect other visible and audible nautical signals, has been the exclusive function of the service for more than a generation. Of 6,606 such individuals examined during the past year, 48 were rejected for physical defects, the most frequent cause being color blindness. So important is the relation of physical fitness of responsible personnel to the safety of ships at sea that, at the request of the Philippine Government, applicants for marine licenses on vessels of Philippine registry are examined as a matterof courtesy by medical officers of the Public Health Service at insular relief stations. In Manila, Iloilo, and Cebu 600 such examinations were made and 15 applicants were rejected, 14 for defective vision and 1 for leprosy.

The La Follette shipping act (Public, No. 302, approved March 4, 1915) provides that 65 per cent of all seamen shall be able-bodied seamen. There are special physical requirements for this class of seamen to insure the necessary ability to man a lifeboat and effect rescues, and a considerable number of applicants are rejected because they lack the physique necessary to insure safety of passengers and others in time of disaster.

The examination of applicants for military pensions and of civil-service employees applying for retirement has been facilitated by an arrangement whereby a request from the Bureau of Pensions is immediately honored at any service relief station in the field, thus permitting the elimination of expenses for certain special pension examiners. Similar arrangements exist for the examination of candidates for citizens' military training camp, patients of the United States Veterans' Bureau, etc. For the examination of immigrants, see page 163.

INSTRUCTION AND EXAMINATION OF SHIPS' OFFICERS IN FIRST-AID

The Steamboat Inspection Service, Department of Commerce, has since July 1, 1922, required each candidate for original license as master, mate, pilot, or engineer to have a knowledge of first aid. The Public Health Service, which for many years has conducted the physical examinations of these candidates, was the governmental agency selected to conduct the first-aid examinations. To assist the candidates and to insure more than a superficial knowledge of the subject on their part, this service, at the request of the Steamboat Inspection Service, designated 43 relief stations (corresponding to local offices of steamboat inspectors) to give instruction in the principles of first aid to the sick and injured and in the sanitation of vessels. Candidates are instructed in the use and application of commonly used remedies which are specified in the "Model Ships' Medicine Chest" designed by the Public Health Service. Frequent demonstrations are given which include the dressing of wounds, bandaging, resuscitation, etc., and quizzes are conducted. The candidates must also acquire the ability to transmit by radio the symptoms of sick or injured persons in order to enable physicians on shore to prescribe treatment. An average of 1,776 candidates have been instructed each year since the inauguration of the work.

As an example of the routine of these lectures the program of one station for the period of eight days preceding the examinations is given as follows:

Lecture and practical instruction	9.30 to 11.30 a. m.
Group study and quiz period	11.00 to 12 m.
Lunch and recess	12.00 to 1.00 p. m.
Group study and quiz period	1.00 to 2.00 p. m.
Lecture and practical instruction	2.00 to 3.00 p. m.

In some instances classes are divided into groups of five or six, one member with superior education being designated as group "captain," under whose direction the candidates review the lectures, practice artificial respiration, bandaging, splinting, etc. At the conclusion of the course of instruction each candidate is examined orally, and if found qualified is furnished a certificate to that effect.

The following table indicates the work performed during the year:

Instructions and examinations in the principles of first aid, fiscal year 1925

	Instructed	Examined	Passed			Rejected			Hours devoted by medical officers		
			Instructed	Uninstructed	Total	Instructed	Uninstructed	Total	Instructions	Examinations	Total hours
July	125	196	90	81	171	11	14	25	146	110	256
August	140	195	117	60	177	9	9	18	168	121	289
September	83	182	77	91	168	4	10	14	120	123	243
October	110	186	104	58	162	17	7	24	127	139	266
November	79	143	74	58	132	4	7	11	98	105	203
December	122	166	101	47	148	8	10	18	189	124	313
January	283	293	158	110	268	7	18	25	248	214	462
February	243	274	152	109	261	5	8	13	239	189	428
March	185	288	168	96	264	10	14	24	209	189	398
April	131	203	123	63	186	8	9	17	178	162	340
May	109	186	111	63	174	7	5	12	164	171	335
June	103	152	79	61	140	3	9	12	136	162	298
Total	1,713	2,464	1,354	897	2,251	93	120	213	2,022	1,809	3,831

RADIO MEDICAL ADVICE TO SHIPS AT SEA

Medical advice by radio to ships at sea has been continued. Shipping interests are now well acquainted with the facilities available, and many requests for advice are received. Governmental and commercial radio stations handle all such messages free of charge.

The service is now available through the following marine hospitals and relief stations: New York City; Key West, Fla.; New Orleans, La.; San Francisco, Calif.; Chicago, Ill.; Cleveland, Ohio; Sault Ste. Marie, Mich, and Manila, P. I.

THE HOSPITAL BUILDINGS

With few exceptions, the marine hospitals are old structures, not in good repair. In many instances the buildings are of frame construction, so grouped as to constitute dangerous fire hazards. Some of the hospitals, because of their age and condition, are rapidly approaching a point where it will be difficult or impossible for them to render the service for which they were intended.

The history of recent efforts to obtain necessary funds to keep the hospitals in serviceable condition will be seen in the following schedule:

Year	Estimates	Approved by Budget	Appropriated
1923	$360,000	$15,000	$15,000
1924	537,000	324,190	92,500
1925	422,000	122,350	122,350

The Supervising Architect has been able, with the inadequate funds at his disposal, to make only the most urgently needed repairs to the many buildings concerned. Some painting and minor repairs have been accomplished by station labor. Major repairs, alterations, and extensions are still required to put the hospitals in suitable condition to furnish adequate facilities for the proper care of an everincreasing number of patients. To bring this about, appropriation by Congress of a considerable amount of money is necessary.

New marine hospitals are needed at several ports and particularly at New Orleans and San Francisco, where dilapidated buildings must be replaced. Additions to enlarge other hospitals and provide needed facilities now lacking are also required, as at Stapleton, Fort Stanton, and Carville.

The lack of facilities for housing the hospital personnel is also detrimental and necessitates large expenditures for rental purposes and allowances. For instance, there are no quarters at Chicago for any medical officers, pharmacist, nurses, aides, and dietitians, or for 15 attendants. The total cost of rents and rental allowances for the above-named personnel aggregates $10,080 per annum. Under the sundry civil act approved July 19, 1919, the sum of $71,000 was appropriated for quarters at this station as follows:

Medical officer's quarters	$10, 000
Junior medical officers' quarters	12, 000
Pharmacists' and nurses' quarters	16, 000
Attendants' quarters	33, 000
Total	71, 000

Repeated efforts to provide these quarters have been futile because the proposals received were always much higher than the amounts available, which must, therefore, be supplemented by additional appropriation. At San Francisco, $21,600 is spent annually for housing facilities for 90 attendants quartered off the reservation, while rentals of quarters for nurses and other female personnel at Baltimore, Buffalo, Key West, Mobile, Port Townsend, Savannah, and Stapleton aggregate $10,996 each year. The total for rentals and rental allowances for personnel quartered off the reservations because of lack of accommodations is $42,676 annually. There is economy and increased efficiency in building nurses' homes and other housing facilities.

Inspection Engineer David C. Trott, detailed from the office of the Supervising Architect, is in charge of the activities of the maintenance unit.

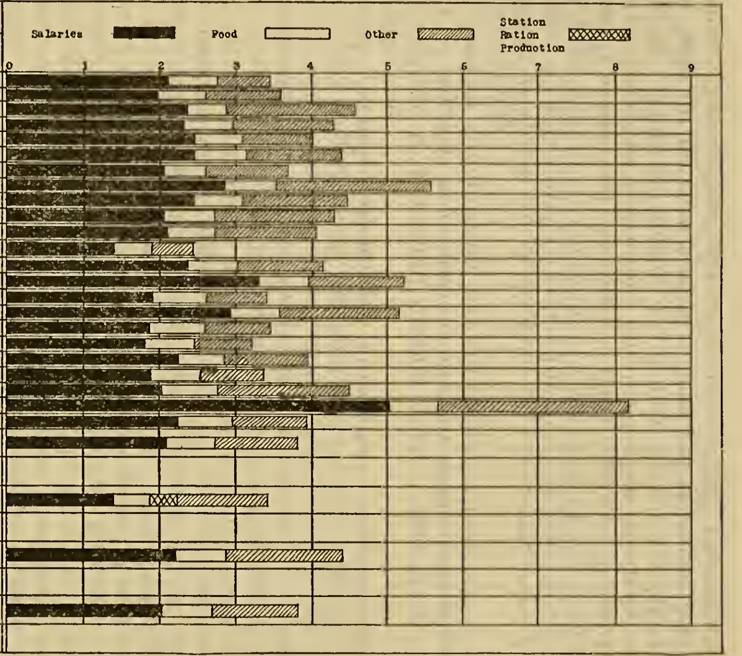
Abstracts of Reports

There are now 25 marine hospitals and 125 other stations in operation; relief is provided in 150 different ports of the United States and its possessions. While it is not desirable to utilize space in this report to give even an abstract of the annual reports received from each, a brief summary of the transactions at the marine hospitals and a few other principal relief stations seems necessary to sketch the general character and volume of work performed. A tabulated statement of the relief given at each station will be found on p. 226.

Marine Hospital No. 1, Baltimore, Md.—Surg. M. H. Foster, in charge. The capacity of this hospital, 167 beds, was taxed to the utmost during the winter months. It was necessary to put up beds in the smoking rooms and in all other available places in order to accommodate patients requiring hospital care. The rated capacity was exceeded on 133 days, and a total of 1,231 patients were treated.

FIG. 2.—AVERAGE PER DIEM COST OF IN-PATIENT RELIEF, U. S. MARINE HOSPITALS, FISCAL YEAR 1925

GROUP OF HOSPITALS	HOSPITAL		COST PER PATIENT DAY				
	NO.	LOCATION	RELIEF DAYS	TOTAL	SALARIES	FOOD	OTHER
GENERAL	1	Baltimore, Md.	58,758	3.42	2.10	.66	.66
	2	Boston, Mass.	49,649	3.58	1.98	.63	.97
	3	Buffalo, N. Y.	24,210	4.59	2.37	.51	1.71
	5	Chicago, Ill.	44,147	4.28	2.33	.64	1.31
	6	Cleveland, Ohio.	29,813	4.01	2.47	.62	.92
	7	Detroit, Mich.	25,331	4.38	2.49	.66	1.23
	8	Evansville, Ind.	16,730	3.66	2.04	.56	1.06
	10	Key West, Fla.	7,316	5.59	2.83	.72	2.04
	11	Louisville, Ky.	18,328	4.43	2.43	.64	1.36
	12	Memphis, Tenn.	16,679	4.27	2.03	.70	1.54
	13	Mobile, Ala.	28,253	4.04	2.10	.63	1.31
	14	New Orleans, La.	128,065	2.44	1.39	.52	.53
	15	Pittsburgh, Pa.	18,875	4.18	2.39	.66	1.13
	16	Portland, Me.	8,202	5.22	3.32	.63	1.27
	17	Port Townsend, Wash.	33,158	3.40	1.91	.69	.80
	18	St. Louis, Mo.	20,757	5.18	2.94	.65	1.59
	19	San Francisco, Calif.	106,904	3.42	1.84	.73	.85
	20	Savannah, Ga.	37,868	3.21	1.79	.67	.75
	21	Stapleton, N. Y.	99,358	3.93	2.26	.56	1.11
	22	Vineyard Haven, Mass.	8,796	3.36	1.87	.58	.81
	43	Ellis Island, N. Y.	113,200	4.50	2.05	.73	1.72
	70	New York City, N. Y. (a)	7,418	8.20	5.06	.62	2.52
	82	Norfolk, Va.	66,378	3.91	2.23	.72	.96
	Per diem cost for General hospitals			3.79	2.07	.64	1.08
	Total relief days		963,993	Cost $3,670,815.61			
TUBERCULOSIS	9	Port Stanton, N. M.	82,467	3.39	1.38	.81	1.20
				Cost $279,866.49			
LEPROSARIUM	66	Carville, La.	82,328	4.39	2.21	.64	1.54
				Cost $361,144.40			
ALL	Per diem cost for all hospitals			3.80	2.03	.66	1.11
	Relief days for all hospitals		1,133,788	Total Cost $4,311,826.40			



(a) In-patient activities were discontinued at the close of the fiscal year, and all facilities will hereafter be devoted to out-patient relief.

NOTE.—This study is based on items of operating expenses of United States Marine hospitals, after deducting miscellaneous income, received from the sales of rations and meals, grease and garbage, sales of occupational therapy articles, and sales of unserviceable property, which money is deposited as miscellaneous receipts, Treasury Department. The receipts for care of pay patients, aggregating $572,860.78, is not deducted from operating expenses in calculating the per diem cost. Per diem cost for salary does not include commutation for quarters, subsistence, and laundry, which are included in "other expenses." The cost of food is that of the unprepared ration for patients only. "Other" includes all other expenses of operation, such as supplies, food for personnel, telephone, telegraph, burials, freight and express, water, gas, electricity, etc. Figures are not final and are subject to revision.

There was an increase in the amount of relief over the previous year of 17 per cent in the number of hospital days, 36 per cent in out-patient treatments, and 24 per cent in the number of physical examinations made. A total of 1,781 surgical operations were performed, including both major and minor operations. There were also 3,328 intravenous injections of salvarsan or similar preparations.

A competent staff of consultants is constantly available, selected from specialists in the city of Baltimore, to enable the hospital to meet any medical and surgical emergency. Recourse to consultants was found less necessary than heretofore, because several members of the marine hospital staff have received special training which enables them to function in the medical and surgical specialties, thereby effecting considerable economies. A consultant in protein sensitization was, however, added to the staff.

During the year the fire menace, which has always been a constant source of anxiety, because buildings of frame construction are crowded together, was reduced by installing additional fire plugs, laying a 6-inch fire main completely around the grounds, and replacing wood by concrete in certain parts of porches connecting the different wards. The need of new construction at this hospital, whereby small wards of inflammable nature may be replaced by larger wards of modern construction, thereby increasing the capacity of the hospital, is apparent. It has not been possible to accommodate patients of the United States Veterans' Bureau during the past year because of the constant utilization of all its facilities for merchant seamen and other nautical beneficiaries of the Public Health Service.

Marine Hospital No. 2, Boston, Mass.—Senior Surg. J. O. Cobb, in charge. Since 1798, without interruption, merchant seamen have been afforded medical and surgical care in this port. The first general hospital erected in Boston was a marine hospital, completed in 1804 and costing $14,842.34. The building still stands on the naval reservation in Charlestown. The present marine hospital, although 85 years old, is in an excellent state of preservation and has been made modern in its appointments. It is a general hospital, prepared to treat all classes of beneficiaries. By discontinuing quarters in ths hospital building the capacity has been increased to 170 beds, which is sufficient for the demands made upon it. A high-pressure water system was installed during the year and, through the courtesy of the Navy Department, was connected with the tank on the Naval Hospital grounds adjoining. This gives much-needed additional fire protection.

In addition to the usual routine work, Coast Guard enlistments and the physical examinations of Government employees for the Civil Service Commission have increased the work of the station very materially.

Marine Hospital No. 3, Buffalo, N. Y.—Surg. John W. Trask, in charge. This hospital, completed in 1909, is beautifully located in a residential section. Its original capacity of 48 has been increased to 60, and it has actually averaged a daily quota of 66 patients throughout the year, the maximum number under treatment at one time being 79. This, of course, could only be accomplished by placing extra beds on porches and in places not designed for the care of patients. The out-patient office gave 9,927 treatments to beneficiaries. This downtown office, located in the Post Office building, has recently been enlarged through the courtesy and cooperation of the Post Office Department, for whose employees emergency first aid and physical examinations are routinely furnished and which supplies a trained nurse at certain periods of the day for dispensary duty. The station also examined all immigrants presented for examination at the Port of Buffalo.

The per diem cost of this hospital for the year was $4.59, which is slightly higher than the average. The explanation is readily found in the fact that a hospital having less than one hundred beds and admitting a large number of acute cases, both medical and surgical, many of which require intensive diagnostic study, must necessarily have a higher per diem cost than that of a hospital of sufficient capacity to carry a resident staff representing the various specialties. The cost, considering the character of the service supplied, was not excessive.

Marine Hospital No. 5, Chicago, Ill.—Surg. R. M. Grimm, in charge. This hospital, like all the marine hospitals on the Great Lakes, has been kept filled to operating capacity throughout the entire year, averaging a population of 121 patients. It is a general hospital, with wards for surgical, medical, tuberculosis and venereal patients, and admits a large number of acutely ill subjects. Trays (meals) numbering 15,688 were served from the diet kitchens for special or seriously ill patients. There was a large amount of operative surgical work in which local anaesthesia was extensively used. The dental officer gave 2,145 treatments, the clinical laboratory made 4,793 examinations, improved its technic in blood chemistry and basal metabolism determinations, and did some work on serum precipitation tests in tuberculosis. A total of 2,107 exposures were made in the X-ray rooms, on 1,391 different patients, of whom 379 were outpatients. In the physiotherapy department 13,599 treatments were given; diathermy was used largely in place of ordinary baking, and ultraviolet light was used extensively, the latter with some success in the treatment of pyorrhea alveolaris. During the year two medical officers took, without expense to the service, special courses of instruction in physiotherapy.

Four different outpatient offices are operated from this hospital, located respectively at 536 Lake Shore Drive, Federal Building Post Office, Van Buren Street Post Office, and at the hospital proper. Another outpatient office in South Chicago was discontinued in the interests of economy and because it was found not urgently necessary for proper service.

This station supervises the medical relief provided by the service for the twenty-three Coast Guard stations and 21 lighthouses in this district, requiring the employment of 9 contract physicians in addition to the 3 third class relief stations concerned. It also provides medical examination of immigrants entering this port and furnishes office space for the Director of Public Health Service District No. 3 and for the district sanitary engineer.

Marine Hospital No. 6, Cleveland, Ohio.—Surg. L. P. H. Bahrenburg, in charge. Approximately one-half of the present hospital reservation, which was purchased in 1842 for $12,000, has now been sold at public auction for $695,000. With these funds it is proposed to purchase a site and begin the construction of a new marine hospital, authorized in Public Act, 371 Sixty-seventh Congress (H. R. 11040). It is anticipated that the remaining portion of the grounds will realize a sufficient amount to complete a modern hospital, plans for which have practically been completed. After considering a total of 70 parcels of land available as a site, a selection was made by a board of medical officers of property admirably suited for the purpose. No reasonable price being obtained from the owners, the Treasury Department was reluctantly obliged to institute condemnation proceedings for this property. The petition was entered in the Federal Court at Cleveland, Ohio, by the United States attorney on June 10, 1925, and it is hoped that the award will shortly be made. The need for the modern facilities and larger capacity, which will be provided in the new hospital, increases from month to month. The last general inspection report, made June 6, 1925, states that aside from the surgical ward and operating room, "All the other rooms, quarters, wards, storage rooms, offices, examination rooms, etc., are dark and gloomy and practically all require artificial illumination at all times." In spite of the inherent disadvantages of this old hospital building and its location in a noisy, smoky portion of the city, it has been kept filled to its capacity of 83 beds, the maximum and average number of patients being 88 and 81, respectively. Approximately half the patients in this hospital are beneficiaries of the United States Veterans' Bureau.

The out-patient office has been transferred from its small quarters in the hospital building to the United States Parcel Post Building, where the postmaster has courteously set aside ample space for present needs, with assurance of additional space when required. The new location is more convenient for all classes of beneficiaries, being one-half mile closer to important docks. Heat, light, water, telephone, and elevator service are provided gratis by the post-office authorities, for whom first-aid relief and physical examinations of injured and new employees, respectively, are greatly facilitated.

Relief work continues to increase, the amount furnished in 1925 exceeding that of the preceding year, 7.7 per cent in the number of patients admitted to hospital and 33 per cent in the number of outpatients treated. Dental work increased 37.4 per cent over the previous year. There has been no lessening in the demands upon the physiotherapy department of the hospital for thermo and electrotherapy and massage, upon the clinical laboratory for highly complicated examinations, or upon the dietetic service for the preparation of special diets. The per diem cost per patient for the year was $4.01. The ration cost rose to 61.9 cents, or 3.3 cents more than that of the preceding year, due partly to the large number of diabetic, gastrointestinal and cardiorenal patients requiring treatment.

Marine Hospital No. 7, Detroit, Mich.—Surg. J. S. Boggess in charge. The sale of this hospital and construction from the proceeds of a new one on a more favorable site was authorized June 7, 1924 (Public, No. 278, 68th Congress). Because of the fact, however, that the property is not expected to yield sufficient funds for both the purchase of a site and the necessary construction, the sale has been temporarily postponed. The amount of repairs necessary to maintain the buildings in a usable condition has been reduced to the absolute minimum. The institution has been as well maintained as the unfavorable industrial environment allows, and has been kept filled throughout the year with a daily average of 69 patients.

Nearly one-half the clientele of this hospital are patients of the United States Veterans' Bureau. Civil-service applicants outnumber all other classes applying for physical examination. Cooperation with the Post Office Department is very close, surgical first aid being supplied promptly to those employees in the Post Office Building, where the out-patient office is located and where the services of a trained nurse employed by the Post Office Department are made available during a portion of her time to the Public Health Service. Among the transactions of this busy general hospital were 23,406 physiotherapy treatments, 2,020 dental sittings, and the usual number of clinical and X-ray laboratory examinations, surgical operations, etc. The station also provides the personnel for quarantine inspection and the examination of immigrants. Foreign shipping during the last fiscal year made its advent on regular schedules in this port.

Marine Hospital No. 8, Evansville, Ind.—Surg. Carl Ramus in charge. This small hospital, erected more than 30 years ago for the care of river steamboat men, and having now a rated capacity of 54 beds, averaged 46 occupied beds during the year, with maximums and minimums of 57 patients and 34 patients, respectively. More than 75 per cent of the clientele are patients of the United States Veterans' Bureau.

By utilizing the services of specialists practicing in the city of Evansville, the hospital has been able to supply a high character of medical and surgical care. By careful economies, moreover, the per diem cost averaged only $3.66 throughout the year. The daily ration cost amounted to $0.56; the chief nurse performs the duties of dietitian at this hospital. One hundred and seventy tonsillectomies were included in the surgical operations performed. Better operating room facilities are needed and better quarters for nurses and some of the other hospital personnel.

Marine Hospital No. 9, Fort Stanton, N. Mex.—Surg. H. J. Warner in charge. This sanatorium is reserved exclusively for tuberculous patients with disease not too far advanced and who are otherwise suitable for treatment at an altitude more than a mile above sea level. Its winter capacity is 236 patients, of which, however, only 60 beds are suitable for bedfast patients, the remainder being in two-bed shacks for the fully ambulatory. The summer capacity is slightly increased by placing beds on verandas. The station was kept well filled by transfers of patients from the other marine hospitals, the average patient population amounting to 226 daily, the maximum and minimum being 251 and 195, respectively. Eighty-five per cent of all patients treated here are sailors from merchant vessels.

This hospital, by reason of its isolation, maintains its own heating, ice-making, and electrical power plant, bakery, fire department, motor-transport service, and farm. The Government herd, valued at about $60,000, has for several years produced all the milk and beef consumed at the sanatorium. The sales of surplus cattle and of hides amount to several thousand dollars annually, the proceeds being turned into miscellaneous receipts of the Treasury Department. All the fresh pork, ham, and bacon consumed on the place, and aggregating approximately 50,000 pounds annually, are also produced from station-raised animals. Reckoning salaries and rations of employees, forage, and all other expense, the farm yields the Government a very considerable profit each year besides insuring a reliable supply of commodities, some of which it would be difficult to purchase in that region. The Government reservation of 42 square miles is composed of the best grazing land in New Mexico.

Newly arrived patients are kept in the receiving ward for 14 days for instruction, after which they are transferred to tent houses if ambulatory, or to the hospital wards if needing continued rest in bed. All patients are examined monthly, and X-ray chest plates are made for all admitted. Exercise, including walking when prescribed by a medical officer, is taken under the supervision of a trained nurse. After reaching the two-hour walking stage patients are given some paid employment. When approaching fitness for discharge, each is encouraged to take a full-time position as an employee, to test his recovery and earn money with which to rejoin his ship. Heliotherapy is extensively used in treatment, both the direct rays of the sun and lamps being used. Eye, ear, nose, and throat treatments average about 32 daily. Induced pneumothorax is used with good results in carefully selected cases. The dental department is especially active, 2,342 sittings being given during the year. The proper care of the teeth is, of course, essential in the successful treatment of tuberculosis.

Occupational therapy has been found very valuable by diverting the minds of the men from their physical ailments. The work is made vocational in character. Wood and metal work is eagerly undertaken by the patients and there is a ready sale for articles of their manufacture, bringing in a small monetary return. Instruction in reading, writing, history, commercial bookkeeping, and other elementary subjects has also been introduced and is welcomed by many convalescents in need of this training. There is an enrollment of forty such patients, who occupied the time of one aide in this department. The United States Department of Labor has furnished Federal Citizenship textbooks, which are being used among the foreign-born patients, especially those desiring to obtain citizenship papers. Through cooperation with the Educational Department of the State of New Mexico, a number of men take correspondence courses in various mechanical and academic subjects. There is a station library of 1,860 books, which has been augmented by private contributions at the instance of a library committee composed of station personnel. Books and magazines are distributed through the wards daily by volunteer workers.

Both the Y. M. C. A. and the Knights of Columbus maintain secretaries at the station, and the last-named organization exhibits two eight-reel moving pictures each week free to patients and personnel, and distributes toilet articles, playing cards, etc., to all patients. Two chaplains, Catholic and Protestant, respectively, have been on duty during the year. They have carried on religious work, attending the sick and dying, and officiated at all funerals. The Seamen's Church Institute of New York has contributed generously to the welfare work at this station, both in the salary of a welfare worker and also in items of clothing, books, magazines, etc.

A dietitian prepares all menus and supervises the cuisine. Station products amount to about 40 per cent of all subsistence supplies used.

The ration, which in itself is an important part of treatment of tuberculosis, is naturally more expensive than that in a general hospital. The average daily ration cost, reckoning station products at the cost of production, was $0.81. This is about 1½ cents more than the previous year because more fresh fruit and fresh vegetables have been served, and also because the price of these supplies was much higher due to the embargo on certain provisions coming out of California during the foot-and-mouth epidemic in that State.

The chief need at this station is a new hospital building to replace the old army hospital burned in 1905. The cavalry barracks, which have been used since that time as a hospital, are unsuitable for the purpose.

Marine Hospital No. 10, Key West, Fla.—Surg. M. K. Gwyn in charge. This small hospital, with a capacity of only 40 beds, which was first opened in 1845 and has since that date constantly served the merchant seamen whose ships pass along the much-traveled adjacent ocean lanes, is a necessary outpost, although its wards are never completely filled. It is operated with one medical officer only, and by the exercise of economy the total expenditures of all kinds for the fiscal year amounted to only $44,931. The sum of $1,661.50 was collected from foreign seamen and other pay patients of the service, and turned into miscellaneous receipts. Medical advice by radio has been furnished upon request to vessels passing in the vicinity, thus often enabling vessels to keep the course at sea with illness aboard. In one instance, by arrangement effected through exchange of radio messages, an acutely ill seaman was transferred outside the harbor bar and brought to hospital through the courtesy of a vessel of the Lighthouse Service.

Marine Hospital No. 11, Louisville, Ky.—Surg. E. H. Mullan in charge. This hospital, which was built by the Government in 1848, and used during both the Civil War and the Spanish-American War for sick and injured soldiers, fulfills an exceedingly useful purpose. It has a capacity of 54 beds and averaged 50 patients throughout the year, the maximum number being 67 patients. It is well located in the residential section of this city; the grounds are ample and well kept. Approximately 66 per cent of its clientele are patients of the United States Veterans' Bureau.

The total expenditures during the year were $81,111.64, which gives a per diem cost per patient of $4.43. This, in view of the high class of service rendered and the divers characters of the diseases and disabilities treated, is not high. To reduce the costs, this station operates without a dietitian, the duties of the position being performed by the chief nurse, and employs a part-time laboratorian. It contracts for X-ray work of highly technical character, though performing routine roentgenological examinations at the station. Attending specialists are employed to supplement a small resident staff of medical officers. Among the surgical operations performed during the year, there were 220 for the removal of tonsils. A new elevator was installed in this hospital during the year, thus facilitating the admission and treatment of ambulance cases.

Marine Hospital No. 13, Mobile, Ala.—Surg. W. H. Slaughter in charge. This hospital was constructed in 1837, but it is in excellent physical condition, and, although too small to meet the demands made upon it, is modern in all its appointments. Of brick, and with a beautiful entrance set with Corinthian columns, its spacious grounds ornamented with handsome trees, including pecan, oak, fig, maple, and magnolia, it is a subject of local pride. It was used exclusively for the treatment of merchant seamen until the outbreak of the Civil War, then by the Confederates as a military hospital until 1865, when, upon its recapture, it was continued by the Federal forces for the same purpose. At the close of the Civil War it reverted to its original and present use.

The application of service beneficiaries for hospital relief continues to be in excess of the normal bed capacity (90), although practically all the space in the building is devoted to ward and administrative use. Only the medical officer in charge and five attendants live upon the reservation. The port terminal facilities now under construction by the State of Alabama, the initial appropriation for which amounts to $10,000,000, will, upon completion, undoubtedly cause a material increase in the maritime activities of the port, with a coincident increased demand on the hospital by service beneficiaries.

During the past year the renovation and remodeling of the hospital was completed through funds made available in a special appropriation for the purpose. The operating rooms, kitchen, ice and refrigerating plant, clinical laboratory, X-ray equipment, physiotherapy, and dental units are now complete and modern in all respects. Consultants from the city of Mobile in the various specialties augment the medical staff

As a measure of the place which physiotherapy treatment has attained in hospital practice, the following classes of cases were so treated at this hospital during the year:

Arthritis.
Arthritis deformans.
Amputations, stump.
Abscess.
Asthma.
Burns.
Epididymitis, acute.
Fractures.
Gunshot wounds.
Inguinal adenitis.
Infections.
Lumbago.
Myalgia.
Neuritis.
Osteomyelitis, chronic.
Paralysis.
Periostitis.
Sprains.
Strain and contusion.
Sciatica.
Tuberculosis, glands of neck.
Ulcer, varicose.
Ulcer, chronic.

The various kinds of physiotherapy treatment given were as follows:

Massage	550
Electrotherapy	441
Thermotherapy	2, 707
Exercise	375
Total	4, 073

The clinical laboratory made 4,938 examinations, and there were 1,433 dental sittings. Hospital relief increased 9 per cent and outpatient treatments 27 per cent. There can be no further increase in hospital relief without enlarging the building.

Marine Hospital No. 14, New Orleans, La.—Surg. W. C. Rucker in charge. This hospital has undergone a tremendous growth during the past fiscal year, at the beginning of which there were 303 patients and at the close 351. The daily census has averaged 353, or 103 over the normal capacity, with peak loads of considerably more than 400 patients. In order to accomplish this it has been necessary to turn warehouses into wards, crowd existing wards to capacity, and place many beds on the porches. There was an increase over the previous year of 75 per cent in hospital relief days and 32 per cent in outpatient treatments, due, it is believed, to the increase in maritime commerce at the port of New Orleans, and also to the high order of professional work which is done at this hospital in spite of an obsolete and inadequate plant. More than 84 per cent of all patients were old-line beneficiaries of the service.

The general surgical service treated 777 patients and performed a large number of major operations. The eye, ear, nose, and throat service performed 166 operations and treated from 25 to 30 patients daily. A total of 3,165 patients were treated in the hospital, 879 of which were admitted to the medical wards. The urological service handled 1,068 patients; 2,264 doses of salvarsan were given; cystoscopic examinations numbering 136 were made, 137 spinal punctures performed, blood drawn for Wassermann examination 3,961 times, and 5,029 smears prepared for special microscopical examinations. The clinical laboratory made 28,116 examinations and the X-ray department examined 2,358 patients, making 4,166 exposures. The physiotherapy department gave 22,000 treatments to 2,346 patients. The outpatient department treated 3,071 patients and made 8,106 physical examinations. The dental service gave 10,997 sittings. Through an intensive study of the dietary, the daily cost of ration was reduced to an average of 52 cents.

This hospital was built in 1885, entirely of frame construction, and of a temporary character, especially designed to be purposely destroyed after a short period of use. Its original capacity was 61 beds and the cost of its construction $110,000.

Although an effort is made to keep the grounds beautified with shrubs and flowers, and while the interiors of the buildings are kept immaculately clean, visitors view with amazement this crude Government hospital in one of the largest ports of the United States and in a wealthy, progressive section of the country. It is an inadequate and obsolete plant. The fire hazards for its many helpless inmates are obvious; considerable loss of life is to be expected in case of a general conflagration. A bill introduced at the last session of Congress, providing for an appropriation of approximately $2,000,000 to construct a modern hospital of fire-resisting character, failed to pass. The rapidly increasing shipping of the port of New Orleans, the growth of the port and of the South, warrants the belief that by the time a modern plant can be constructed, a minimum of 600 beds will be necessary.

A well-known fact—that the marine hospitals supplement the functions of the United States quarantine stations (for which see p. 120) by acting as a second line of defense against the importation of exotic disease—was exemplified in October, 1924, when a foreign seaman admitted to hospital developed bubonic plague. Prompt measures were taken to prevent the spread of the disease from ship to shore and to other ports. The life of the patient was also saved.

Marine Hospital No. 15, Pittsburgh, Pa.—Senior Surg. C. H. Gardner in charge. This hospital has been fairly well filled during the year, the occupied beds averaging 86 per cent of the rated capacity of 60. There has been an increase of 37 per cent in outpatient treatments over the previous year. Patients of the United States Veterans' Bureau constantly comprise slightly more than 60 per cent of the clientele. Since the effective date of the World War Veterans' act of

1924, there has been an increase in the number of acute cases, with a resultant more rapid turnover of patients.

The consultant staff was augmented during the year, resulting in an improvement in the medical and surgical service and a slight increase in per diem costs.

Marine Hospital No. 16, Portland, Me.—Senior Surg. H. S. Mathewson in charge. This hospital, which was constructed in 1859, has six wards and a capacity of 42 patients. It is adequate in size for present purposes, and will lend itself to enlargement in case of need. The main building is well built of brick. It is surrounded by a reservation of 16 acres, and the part on which the hospital stands is 300 feet above sea level. It is picturesquely situated, commanding Casco Bay, with an unobstructed view of the city of Portland, 3 miles distant. The beds in this hospital have not been entirely occupied during the year and space is available for the accommodation of an additional number of patients of the United States Veterans' Bureau, for whom its facilities are constantly available.

Marine Hospital No. 17, Port Townsend, Wash.—Surg. F. H. McKeon, in charge. This hospital, although situated 40 miles from Seattle, the port which it serves, has been constantly filled and an overflow of patients also maintained in a contract hospital. Merchant seamen constitute two-thirds of its clientele and Coast Guardsmen the next largest number. The balance is made up of patients from the Employees' Compensation Commission, Lighthouse Service, Coast and Geodetic Survey, Army Transport Service, United States Navy, Veterans' Bureau, and foreign seamen.

The genito-urinary service is large, 24 beds, or nearly one-fourth of the capacity, being devoted to this class of beneficiaries. The surgical, dental, laboratory, and physiotherapy units are well equipped and otherwise adequate. The building, which is a three story structure, entirely of frame construction and having wooden stairways and floors, presents unusual fire hazards involving much risk of life to patients.

Marine Hospital No. 18, St. Louis, Mo.—Surg. A. J. McLaughlin, in charge. The buildings now occupied by patients are the "barrack wards" that were erected on the grounds in 1862 for the hospital care of Federal troops, of whom 4,598 were treated here during the Civil War. The original marine hospital building, built in 1855, is also still in use.

In spite of an antiquated plant, a satisfactory standard of medical and surgical service is rendered, and the hospital, which is kept well filled with merchant seamen from river freighters, fulfills a useful purpose. During the year new boilers were installed and the heating facilities completely overhauled.

Marine Hospital No. 19, San Francisco, Calif.—Senior Surg. W. J. Pettus, in charge. There was only a slight increase in the number of patients treated in this hospital because it was kept almost constantly filled during the previous year and without increasing the capacity of the hospital it has evidently reached the limit of its functions. There was, however, an increase of 26 per cent in the outpatient work. A bill (S. 1550) introduced during the last Congress, which provided for the construction of new buildings on the present site, failed to pass. It is necessary, therefore, to continue to carry on in the frame buildings which were constructed in 1875 and which are obsolete in character and a serious fire hazard. An appropriation of $40,000 was made available July 1, 1925, to enlarge the mess hall and kitchen, laundry, etc., and this will provide some temporary relief.

A tabulated account of the transactions will be found on p. 226 of this report. During the year there were 6,825 dental treatments, which included 2,248 extractions of teeth. Intravenous injections of arsphenamine were made 3,777 times, 58,020 physiotherapy treatments were given, of which 19,000 were massages. Physiotherapy is mentioned by the medical officer in charge as "an indispensable adjunct to the hospital in the treatment of disease and injury." The X-ray department made 4,970 examinations, of which the largest number (1,400) were of bone and joint conditions. The clinical laboratory made more than 9,000 examinations.

A pharmacist, in addition to his hospital duties, acts as disbursing agent to all the Public Health Service stations on the Pacific Coast.

Marine Hospital No. 20, Savannah, Ga.—Surg. J. T. Burkhalter, in charge. This is a modern, completely equipped, fire-resisting hospital with resources competent to meet any medical and surgical emergency. The new wing, completed and opened during the fiscal year, 1924, has been kept well filled. The capacity is now 143, and during January, 1925, the number of patients averaged more than 150. Owing to the increase in its activities, which amounted to 35 per cent in hospital days and 43 per cent in outpatient treatments, it was necessary to augment the number of nurses, medical officers, and other personnel on duty. Merchant seamen outnumbered Veterans' Bureau patients in the proportion of about three to one. The per diem cost for the year averaged $3.21.

Marine Hospital No. 21, Stapleton, N. Y.—Surg. C. H. Lavinder, in charge. This hospital, although too small to meet the demands constantly made upon it, and while housing all surgical patients in frame buildings of temporary construction, has been thoroughly modernized in its equipment and essential appointments. Its X-ray, physiotherapy, dental, eye, ear, nose, and throat, and genito-urinary facilities are modern and complete in all respects. It alone of all the marine hospitals is equipped for deep X-ray therapy. Twelve consultants, whose services are also shared by the marine hospitals on Ellis Island and in Manhattan, bring to the hospital the highest skill available in the various specialties. There was no increase in the amount of hospital relief provided by reason of the fact that for more than two years the hospital has operated to the limit of its capacity. There was, however, an increase of 36 per cent in the functions of the out-patient office, which are conducted at the hospital and were originally designed to meet only exigencies arising among beneficiaries in the immediate neighborhood of the hospital. The development of docking facilities on Staten Island has, however, made it necessary to meet the growing demands for outpatient relief in this neighborhood.

To briefly summarize the principal transactions of the hospital, the clinical laboratory made 14,630 examinations, the X-ray department 6,886 exposures, of which 685 were of the chest and 1,191 for the examination of diseases of the bones and joints, the physiotherapy rooms gave 33,456 treatments, an increase of 10,000 over last year's work, and the dental section which has operated only since December, 1924, gave 2,898 treatments. Intravenous injections of salvarsan or other arsenicals were given to the number of 2,186, and 1,326 surgical operations were performed, including 110 operations for the removal of the appendix, 114 for fractures, 166 for the correction of hernia, and 128 for removal of the tonsils. With due regard to proper standards, a very great effort was made to administer this hospital with economy. The average per diem cost per patient for the year was $3.93 and the average cost of the ration was $0.56. Both these figures, as pointed out by the medical officer in charge, are too low for a general hospital with average standards of medical and surgical care, and are due in some measure to the overcrowding of the institution, which is in itself unfortunate. It is not improbable that the cost of the ration may have been reduced to a point where it may prove necessary to modify somewhat the rather severe economical administration of the hospital. The full-time personnel, which consists of 15 medical officers, 2 dental officers, 30 nurses, and a total, including the foregoing, of 198 persons, or only one for an average of 1.37 patients in hospital, is lower than the average personnel in civilian hospitals of New York City, which, exclusive of doctors, amounts to one per 0.687 patients. The greatest need at this important hospital is for the removal of the frame structures temporarily used as a surgical unit and the construction of fireproof wards to replace them, and to enlarge the institution to not less than 500 beds. Housing facilities for nurses and attendants should also be amplified. A bill (H. R. 8520) proposing the construction of an addition to the present hospital building, housing facilities, etc., at an estimated cost of $1,700,000, was introduced during the last session of Congress, but failed to pass.

Marine Hospital No. 22, Vineyard Haven, Mass.—Surg. R. L. Allen, in charge. This small hospital, with a rated capacity of 24, has been constantly filled during the year, the average daily quota amounting to 24. It is located alongside much traveled ocean lanes, and is necessary to serve an important section of coast. A large hospital is not needed here, however, and no effort is made to supply the more highly specialized character of medical and surgical service that is necessary in the larger marine hospitals. One medical officer alone furnishes all hospital and outpatient treatment, the number of nurses is also limited, and by retrenchment and strict observance of necessary economies, the average per diem cost for the year amounted only to $3.36.

Marine Hospital No. 43, Ellis Island, N. Y.—Surg W. C. Billings, in charge. Although, due to the diminution in the number of immigrants and change in practices governing admissions, aliens detained in hospital diminished 23.4 per cent, the total number of patients treated was only slightly less than in the preceding year. This is due to the fact that it has been necessary to divert to Ellis Island merchant seamen, Coast Guardsmen, and other old-line beneficiaries applying for treatment at the marine hospital, Stapleton, but for whom accommodations were lacking in that institution. Beneficiaries were also transferred from Philadelphia when the marine hospital at Baltimore was filled to capacity. Nearly one-half of the amount of relief furnished at Ellis Island has been for these old-line beneficiaries, whose numbers have approximated those in the marine hospital at Chicago.

This hospital is a general hospital, with clinical laboratories, surgical operating room, etc. Its physiotherapy department gave 6,787 treatments, and 60,027 X-ray exposures were made. It is necessary to maintain a large number of empty beds at this hospital in order to meet the exigencies presented by the arrival of a single large ship having many sick immigrants aboard. More than 100 patients are sometimes admitted in a single day. The turnover is high because many admissions to hospital are for diagnosis only. The treatment of patients with contagious disease presents a special problem here and requires the operation of a separate group of buildings on Island No. 3 as a contagious-disease hospital. All these factors are responsible for the fact that the average per diem cost at this hospital is somewhat above the average, and amounted to $4.50 for the fiscal year. The ration is higher than the average, 73 cents per day, due in part to the necessity of meeting the vastly different dietary habits of divers races and creeds, the desire of avoiding criticism as far as possible, and the wasteful habits of alien patients, who do not cooperate in economies in a land which they believe too rich to require thrift. Four trained linguists are required to assist in handling the many anxious friends and relatives, 400 such visitors having called in a single day. The taking of medical histories also presents special problems. A librarian, whose salary has been paid by the American Library Association, has distributed papers and magazines printed in various languages supplied without cost to the Government, and has charge of the hospital library of 4,000 volumes.

Owing partly to the divided responsibility, the hospital buildings are in need of many extensive repairs. The Commissioner of Immigration (acting for the Department of Labor) and the Supervising Architect (functioning for the Secretary of the Treasury) have lent themselves whole-heartedly to a plan which will be presented to the Bureau of the Budget by the Immigration Service for the purpose of improving physical conditions.

Marine Hospital No. 66, Carville, La.—Surg. (R) O. E. Denney, in charge. The increased facilities provided by the new buildings were utilized during the year, 90 lepers on the waiting list or recently found being brought from the various States. At the end of the year there were 257 leper patients in the institution, 195 males and 62 females. Of these, 13 are under 21 years of age, of whom 7 are under 16. Patients from the following States and Territories are represented in the present clientele in the numbers shown below:

Arkansas	1
California	39
District of Columbia	1
Florida	13
Georgia	2
Hawaii	1
Illinois	8
Kansas	1
Louisiana	119
Maryland	3
Massachusetts	4
Minnesota	5
Mississippi	6
Missouri	3
Nebraska	1
New Jersey	2
New York	24
Oregon	3
Pennsylvania	1
Texas	13
Virginia	5
Wisconsin	2
Total	257

The majority of our leper patients contracted the disease in the United States or its territorial possessions. The following list shows the place of birth of all the patients, including 90 who, coming originally from foreign countries, developed the disease after having resided in the United States for more than five years. No deportable aliens have been transferred to the leprosarium.

Bahama Islands	1	Korea	1
Bohemia	1	Malta	1
British Guiana	2	Mexico	8
British West Indies	2	Palestine	1
Canada	1	Panama	1
Cape Verde Islands	1	Philippine Islands	8
Central America	1	Porto Rico	2
China	18	Portugal	2
Finland	2	Russia	3
Germany	2	Serbia	1
Greece	10	Spain	3
Hawaii	4	Territory of Smyrna	1
Hungary	1	Turkey	2
India	1	United States	167
Ireland	1	Virgin Islands	1
Italy	6	West Indies	1

Fifteen patients absconded during the year, six of whom have returned; six absconders were war veterans. While it has been found necessary to confine a few leper patients who, having been placed there against their will, for the protection of others, seek opportunity to escape in defiance of law, the institution is maintained as a hospital and not a prison. All patients are housed in 11-room cottages, each having his own room wherein privacy is respected. Moving pictures, radio, outdoor recreation, and opportunities for religious worship are provided, together with employment at a small wage for those able to work. Private enterprise is encouraged and a market provided by the leprosarium itself for poultry and other products. The natural beauty of the grounds has been enhanced by the addition of many tropical and subtropical plants, some of which have been furnished through the cooperation of the Department of Agriculture, and by native shrubs, trees, and flowers. A definite scheme has been worked out by a representative of the Supervising Architect for the beautification of the reservation, and a horticulturist is employed. This contemplates certain walks and roadways, the planting of additional shade trees, the proper arrangement of lawns and flowers, and the construction of inexpensive but ornamental fountains and lagoons. The program, to occupy several years, is designed to so beautify the place as to cultivate a spirit of pride among the inmates which will add to their contentment and to their willingness to remain there, and will, moreover, induce other lepers to enter who are now reluctant and are a menace to health in various parts of the country.

The resident staff numbers four physicians, several of whom are qualified experts in the treatment of leprosy. Attending specialists secured from the neighboring city of New Orleans also routinely visit the institution. All these physicians have devoted themselves wholeheartedly to the search for a cure for leprosy and to the application of therapeutic measures already known to be curative. The use of chaulmoogra oil has been continued, 157 patients at present receiving this remedy. Marked improvement has been noted in some cases, while others have not responded favorably Particularly good results have been noted where large doses can be taken, and as much as 200 and even 300 drops per day have been tolerated over long periods of time, followed by remarkable improvement. Patients not receiving chaulmoogra oil or its ethyl esters are under some other form of treatment, of which mercurochrome has yielded very promising results. Forty-four patients have now been under observation for treatment with mercurochrome for 12 or more months, the results of which are as follows:

	Active, advanced	Active, moderately advanced	Active, early	Inactive, early	Totals	Per cent
Markedly improved	9	6	1	0	16	36.4
Moderately improved	1	3	2	0	6	13.6
Slightly improved	3	2	1	0	6	13.6
Unchanged	3	1	1	2	7	15.9
Slightly worse	0	2	0	0	2	4.5
Moderately worse	2	0	1	0	3	6.8
Died	2	1	0	0	3	6.8
Absconded	0	1	0	0	1	2.3
Total	20	16	6	2	44	99.9
Per cent	45.4	36.4	13.6	4.5	99.9	

A preliminary report of this experiment (which is being continued) has been submitted for publication under the title "The Administration of Mercurial Preparations in Leprosy. Preliminary Report I—Mercurochrome Soluble 220."

Physiotherapy has been found of great value, especially because a great percentage of lepers have, as a result of their disease, painful deformities such as flexion contraction of the hands and feet. Under treatment, the excruciating nerve pains have often subsided, atrophied muscles regained much of their tone, and an improvement has been effected in the general physical condition. There was a steady increase in the number of physiotherapy treatments from 937 in October, 1924, to 4,400 in June, 1925. The greatest improvement resulted from contrast baths, massage, and active and passive exercises, especially in patients with contractions and atrophies. In ulcers, nerve pains, and osseous lesions the ultra-violet and radiant light have produced encouraging results. In cases with extreme contraction deformity surgical interference is, however, often the only means of correction.

Specialistic treatment or examination by a physician skilled in neuropsychiatry was afforded 123 leper patients, of whom 10 per cent presented symptoms of mental impairment varying from mental deficiency to psychosis. Nervous manifestations directly attributable to leprous involvement were met with in all but two of these cases.

Many patients have severe neuralgic pains, others areas of anaesthesia, and in some the senses of taste and smell are deficient or lacking. Blindness is a common complication in leprosy and nearly a score of the patients are totally blind. The attending specialist in ophthalmology has been successful in preventing many cases of blindness by early treatment of the iritis, lid paralysis, etc., and by operative procedures such as cataract extractions and iridectomy for artificial pupil. Glasses have been supplied when indicated. One dentist and one dental mechanic are constantly employed in relieving diseased conditions of the teeth and mouth to which lepers are susceptible. Treatments for pyorrhea and necrosed bone are given, artificial dentures are supplied, and other routine dental procedures carried out.

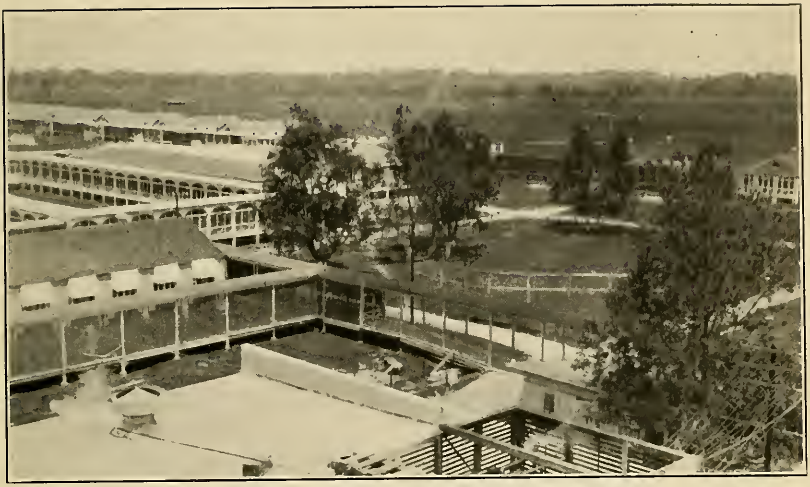
The excellent laboratory facilities have been devoted to research and to routine work. The laboratory also is intrusted with the important task of sterilizing all outgoing mail. During the fiscal year 75 physicians, 85 medical students, and 21 nurses have visited the hospital for instruction in the symptomatology and treatment of leprosy. The medical officer in charge has also proceeded to neighboring cities and addressed physicians concerning the early diagnosis of leprosy and to clear up doubtful cases. This marine hospital is, therefore, becoming a medical center in this specialty.

The greatest need at this institution is for the construction of a detention building for insane and absconding patients, and a hospital building, proper, to provide better nursing facilities for the bedfast and helpless.

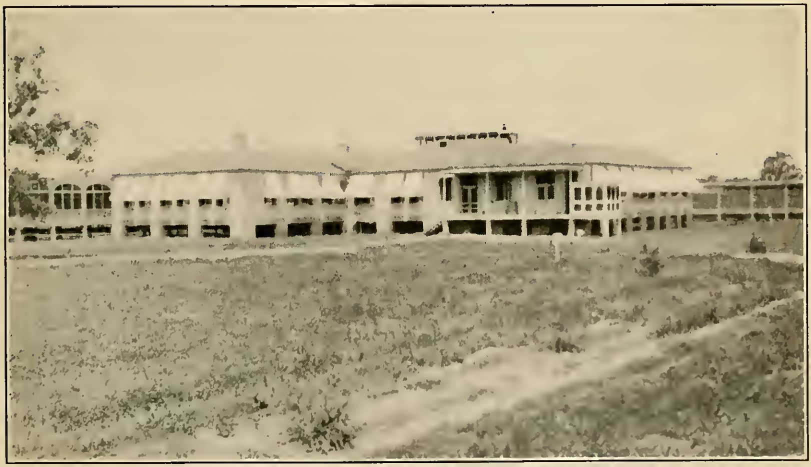
Marine Hospital No. 70, New York, N. Y.—Senior Surg. E. K. Sprague in charge. This institution is really a large dispensary for outpatients instead of a hospital, and operates branch offices at the Barge Office, the Seamen's Church Institute, and in the Post Office Building, Thirty-third Street, where a 24-hour medical service is maintained. The volume of work may be judged by the fact that frequently the weekly treatments aggregate 3,000. The largest amount of work is, of course, handled in the hospital building at 67 Hudson Street, where are located the large clinical laboratory, X-ray equipment, physiotherapy apparatus, and specialistic services, including dental treatment. Four dental officers and a dental mechanic are constantly employed and are unable to meet the demands made upon them by outpatient beneficiaries. All emergency requirements, such as fillings and extractions, are met, but the more complicated and time-consuming procedures not of an emergency nature are of necessity omitted. With the urgent work alone, engagements are made so that the book of each dental officer is usually filled for two weeks in advance. No better evidence could be found of the recognition among a representative industrial class—i. e., merchant seamen—of the benefits of dental work. While a considerable amount of this work is recommended by medical officers in connection with the treatment of arthritis and other diseases, the majority of the patients seek relief from acute dental conditions. The saving in hospital days effected by routine dental treatment can not, of course, be determined, but it must be large.

Because of an increase in the outpatient work at this hospital, and also to meet the economies which have become necessary because of curtailment of funds for relief purposes, the emergency wards of 23 beds formerly maintained here have been discontinued, thus making it possible to reduce the personnel by 21, including 8 nurses. The branch outpatient office at the Army supply base, South Brooklyn, has also been closed. The night and day ambulance service in which three ambulances are employed, is, however, maintained, hospital patients being transferred to the other two marine hospitals in Greater New York.

It is desired to acknowledge the cooperative assistance by the Seamen's Church Institute, 25 South Street, New York City, which has provided without expense to the service a well-equipped out-



PATIENTS' COTTAGES, CARVILLE, LA.



KITCHEN AND DINING ROOM, CARVILLE, LA.

QUARTERS, CARVILLE, LA.

ADMINISTRATION BUILDING, CARVILLE, LA.

ONE OF THE CHAPELS, CARVILLE, LA.

patient office, where beneficiaries of the service are treated by a part-time medical officer assigned to the duty. The radio medical service to ships at sea, which is furnished chiefly from Marine Hospital No. 70, was also first initiated through the instrumentality of this institution and the Radio Corporation of America.

Marine Hospital No. 82, Norfolk, Va.—Surg. A. D. Foster in charge. The year just closed marks the third full year of the operation of this hospital, which was completed in May, 1922. The work has shown a constant increase since that time, and during the past year there was an increase over the previous year of 16 per cent in patients admitted, 13 per cent in outpatient treatments, and 86.8 per cent in the number of physical examinations made. This increase is due partly to the development of neighboring terminals and the general growth of the shipping facilities of the port.

The capacity of the hospital is 217. It was fairly well filled throughout the year, the maximum, 209, being reached in March, 1925. As practically all the patients in this hospital are admitted for acute illness, the amount of surgical work performed has been very large. There were, for example, 80 abdominal operations, of which 50 were appendectomies, 182 operations for the removal of the tonsils, and 66 for hernia. There were more than 1,400 intravenous administrations of the arsenicals and a large amount of minor surgical work, while the X-ray department made nearly 3,000 exposures and 7,084 clinical laboratory examinations were made. The grounds have been beautified by shade trees obtained from the city forester of Norfolk and from the Navy ammunition depot at Yorktown, Va., without cost to the service. The average per diem cost of operation was $3.91. This hospital has recently been placed by the Council on Medical Education and Hospitals of the American Medical Association upon the accredited list of institutions approved for interneship.

Relief Station No. 245, Galveston, Tex.—Asst. Surg. (R) E. M. F. Stephen in charge. The lack of a marine hospital at this port is partly compensated for by the unusually favorable arrangement which the contract institution, the John Sealy Hospital, provides in one of its best and most completely equipped wards set aside exclusively for service patients, who averaged 40 throughout the year. The entire medical staff of this hospital is available for consultation and other assistance without additional compensation, an arrangement which has been very satisfactory in furnishing expert attention when services of specialists are needed. The service officer assigned to duty at this hospital provides outpatient relief at all hours when the outpatient office is closed.

There was an increase over the previous year of 4 per cent in hospital relief days, and 5 per cent in outpatient treatments. This is presumably due in part to a recent adjustment by the Interstate Commerce Commission of certain freight and water rates affecting southern ports, resulting in heavier movement of water traffic through the port. Sixteen hundred neoarsphenamine intravenous treatments were administered. The medical officer in charge also issued 2,364 port sanitary statements to departing vessels. He examines immigrants entering the port, furnishes radio medical advice to ships at sea, and supervises medical relief provided by the service for the nine Coast Guard stations and eight lighthouses lying in this district.

Owing to the growth of this and neighboring Gulf ports, general increase of population in this section of the country, and the consequent revival of American shipping, a new marine hospital to serve this section of the coast is needed.

Relief Station No. 295, Nome, Alaska.—Acting Asst. Surg. Curtis Welch in charge. At this port, the most northerly relief station of the Public Health Service, a serious epidemic of diphtheria occurred during the past winter. With the cooperation of the Bureau of Education, the Alaskan Railroad administration, and the Delegate from Alaska, and by assistance from private dog-team drivers along the Yukon River and other Alaskan citizens, a sufficient quantity of antitoxin was secured and delivered in time to control the disease before serious loss of life occurred.

Relief Station No. 301, Balboa Heights, Canal Zone.—Surg. C. P. Knight in charge. The service officer who is detailed to the Governor of the Canal Zone conducts, in addition to his quarantine duties, a relief station for merchant seamen and other beneficiaries of the Public Health Service. Acting for the governor, he functions for the United States Veterans' Bureau to provide medical care for World War veterans, the number of which increased greatly this year. There was an average of 30 patients of various classes constantly in hospital. Merchant seamen in need of prolonged hospital care are transferred whenever practicable to a marine hospital in the United States. This is accomplished without expense to the service.

Relief Station No. 305, Philadelphia, Pa.—Sen. Surg. W. G. Stimpson in charge. In this port a marine hospital has never been provided because of its proximity to New York and Baltimore. Beneficiaries in need of immediate hospital care are admitted to a separate ward set aside for their use in the contract hospital (St. Agnes in recent years), where their treatment is carried out by a service officer. A Public Health Service nurse also supervises their care. The number of hospital patients averages approximately 15, and is kept as low as possible by transferring to the marine hospitals in Baltimore or New York all patients who can be safely moved and who require more than temporary care.

Philadelphia has shown a general increase in relief work, which amounted to 35,458 units in 1922, 36,872 in 1923, 37,216 in 1924, and 37,645 in 1925. Merchant seamen and other nautical beneficiaries constitute 75 per cent of the clientele. The small outpatient office which houses both the relief and quarantine functions of the port, is quite inadequate. It is so congested that at times patients waiting for treatment not only fill the waiting room but must stand outside. An effort was made during the year to obtain additional quarters but without success. Contract for an addition to this building, provided for in sundry civil act, July 19, 1919, carrying an appropriation of $20,000, was let on December 4, 1920. Upon representation, however, from the Philadelphia Historical Society that the addition would mar the appearance of adjacent historical buildings, construction was abandoned, and the foundations, which had been placed at an expense of $3,617.64, were removed. A bill, H. R. 6492, Sixty-eighth Congress, providing for the purchase of an adjacent building for outpatient use, failed to pass.

Relief Station No. 309, Port Arthur, Tex.—Surg. T. J. Liddell in charge. This relief station is located in the same office with the quarantine activities of the Lake Sabine district quarantine station and the Sabine quarantine station, one medical officer in charge supervising the functions of all three stations. The number of patients in contract hospital has been kept at the minimum by transferring to the New Orleans Marine Hospital all those needing more than temporary treatment and able to travel. Merchant seamen constitute 90 per cent of all beneficiaries.

Relief Station No. 317, Rock Island Arsenal, Ill.—Acting Asst. Surg. Harry W. Keatley in charge. This station is unique in that patients of the United States Employees' Compensation Commission outnumber all other beneficiaries. The number of physical examinations required by the Civil Service Commission is also unusually large. Patients are received from Government establishments from more than 60 miles around, and the location here of the largest Federal manufacturing plant now existing (the Rock Island Arsenal) together with other establishments where the Government employs personnel extensively, accounts for the large number of these beneficiaries.

Relief Station No. 326, San Juan, P. R.—Surg. D. E. Robinson in charge. This relief station, which is located at the United States quarantine station, which the medical officer also superintends, is charged with the responsibility of supplying hospital care and physical examinations for patients of the United States Veterans' Bureau, who outnumber all other beneficiaries of the service at this station except in out-patients alone, in which merchant seamen take first rank.

Supply Depot, Perry Point, Md.—Associate Medical Purveyor C. H. Bierman in charge. All requisitions for equipment and hospital supplies, of which more than 4,000 were received from marine hospitals alone, are cleared through this supply depot. Goods from surplus stock, valued at $247,442.67, were shipped to marine hospitals and other service stations. No article is purchased for which a reasonable substitute is to be found in the Army surplus accruing from the division with the Veterans' Bureau. The stock of commonly used drugs and materials of nonperishable nature is also replenished by purchase from time to time and requisitions filled therefrom. During the year two ambulance bodies and four suburban (light freight) bodies were secured for installation on motor-vehicle chassis furnished from Army surplus. Through the utilization of these Army surplus vehicles, it is estimated that a saving of approximately $10,000 was effected.

Other governmental agencies have shared the surplus stock as a matter of general economy on the Surgeon General's initiative and through the chief coordinator. During the year such supplies, valued at $297,110.61, were issued as follows:

Agriculture, Department of	$79, 822. 99
Commerce, Department of	859. 83
Government Printing Office	5, 151. 66
Interior, Department of	99, 532. 14
Justice, Department of	21, 217. 93
Marine Corps	1, 553. 05
National Soldiers' Home	36, 361. 29
National Training School	5. 61

Post Office, Department of	$18, 986. 51
Public Buildings and Grounds	6, 497. 73
Shipping Board	2, 450. 87
State, War, and Navy buiildings	18, 115. 79
Treasury Department	6, 368. 65
War Department	186. 56
Total	297, 110. 61

THE NURSING, DIETETIC, AND RECONSTRUCTION SECTION

The work of the nursing department has been carried on during the year with an office force of three, consisting of the superintendent of nurses, one assistant superintendent, and one stenographer, who combines the duties of clerk and stenographer. The department in the field, including dietitians, aides, and librarians as well as nurses, consists of a total of 408, as follows: Nurses, 350; dietitians, 35; aides, 21; and librarians, 2.

During the year 214 new requests for applications were received, of which number 63 completed applications were received and 53 of this number were given employment. Forty-eight nurses with previous Public Health Service experience were reinstated. Three hundred and forty nurses were certified to the bureau by the Civil Service Commission, of which number 117 were selected for appointment, 102 of this number having been recruited by the nursing department and 15 having been obtained through the civil service.

During the year there were 129 resignations and 139 appointments, showing an increase of 10 nurses. New Orleans and Savannah each increased their nursing service on account of the increase of patients.

Of the nurses now in the service 34 have served over six years, 38 have served over five years, 35 have served over four years, 62 have served over three years, 51 have served over two years, and 42 have served over one year.

Dietitians.—There are 35 dietitians on duty. The dietetic departments at New Orleans and Norfolk have been increased by one additional dietitian each. The chief nurse at Louisville, Ky., has assumed charge of the dietetic department at that station.

Aides.—There are 19 physiotherapy and 2 occupational aides in the service. The physiotherapy department has been enlarged at Detroit, necessitating an additional aide. Departments were established at Carville and Savannah. Occupational therapy is done solely at Fort Stanton, where one crafts aide and one educational aide are employed. Librarians are serving full time at Stapleton and Ellis Island and part time at San Francisco and Boston.

The emergency room in the "C" Building at Washington, D. C., is in charge of the nursing department. The number of general treatments has averaged about eight daily. Records of illness of employees are kept and visits made to the sick when indicated.

During the smallpox epidemic in April and May 1,198 vaccinations were made in the emergency room, with follow-up observations of 1,254 cases. The nursing department assisted with 841 vaccinations and 793 observations outside the Public Health Service in other Government departments.

Papers were prepared by the superintendent of nurses for the meeting of the American Nurses Association (which paper was published in the American Journal of Nursing), for the Review of the National League of Nursing Education, and for the Pan American Bulletin. A survey of public health nursing in State departments of health was made and the report was published in the Public Health Reports. A survey of the training of nurses in venereal disease prevention was made in a selected number of training schools and an outline of lectures on venereal disease control is in preparation for use in nurse training schools.

At the request of the Instructive Visiting Nurse Society, a course of lectures for students in public health nursing was prepared by Senior Surgeon Taliaferro Clark and the superintendent of nurses. One class has completed the course and the second is now being given. This course of lectures has been considered deserving of widespread commendation, and the nursing service gratefully acknowledges the assistance given by the officers of the service, an assistance which made the success of the course.

The superintendent of nurses was appointed a member of the Nurses Advisory Council of the Veterans' Bureau and serves that committee in the capacity of chairman. She also serves on the committee of beds and bunks of the Bureau of Standards and the committee on standardization of mattresses and pillows. Other allied activities include membership in the National Committee of the American Red Cross nursing service; chairmanship of the section on government nursing of the American Nurses' Association, of the Jane Delano memorial committee, and of the American Nurses Association committee on Federal legislation.

The chief need of the nursing service is the stabilizing which will come only through legislation similar to that establishing the Army and Navy Nurse Corps. Each year demonstrates more clearly the urgent need for this legislation if the nursing department of the Public Health Service is to grow in efficiency and spirit of service.

The superintendent of nurses, Miss Lucy Minnigerode, was awarded the Florence Nightingale medal by the International Red Cross at Geneva, in May, 1925, for especially meritorious service.

TABULAR SUMMARY

TABLE 1.—*Number of patients treated annually, 1868 to 1925* [1]

Fiscal year	Sick and disabled patients furnished relief	Fiscal year	Sick and disabled patients furnished relief
Prior to reorganization:		After reorganization—Continued.	
1868	11,535	1897	54,477
1869	11,356	1898	52,709
1870	10,560	1899	55,489
After reorganization:		1900	56,355
1871	14,256	1901	58,381
1872	13,156	1902	56,310
1873	13,529	1903	58,573
1874	14,356	1904	58,556
1875	15,009	1905	57,013
1876	16,808	1906	54,363
1877	15,175	1907	55,129
1878	18,223	1908	54,301
1879	20,922	1909	53,704
1880	24,860	1910	51,443
1881	32,613	1911	52,209
1882	36,184	1912	51,078
1883	40,195	1913	50,604
1884	44,761	1914	53,226
1885	41,714	1915	55,782
1886	43,822	1916	58,357
1887	45,314	1917	64,022
1888	48,203	1918	71,614
1889	49,518	1919	79,863
1890	50,671	1920	110,907
1891	52,992	1921	144,344
1892	53,610	1922	153,633
1893	53,317	1923 [2]	126,956
1894	52,803	1924	159,686
1895	52,643	1925	204,944
1896	53,804		

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[1] These figures do not include patients treated in connection with veterans' relief activities of the service, as follows: 1918, 192; 1919, 13,856; 1920, 279,036; 1921, 667,832; 1922, 242,379; 1923, 9,704; 1924, 3,414; and 1925, 4,360.

[2] In this year the practice of recounting outpatients applying for treatment in more than one calendar month was discontinued.

TABLE 2.—*Transactions at United States marine hospitals and other relief stations, fiscal year 1925*

Station and location	Total number of patients treated	Number of patients treated in hospital	Died	Patients remaining in hospital June 30, 1925	Number of days' relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
Grand total	209,304	43,287	907	3,475	1,342,011	166,017	493,771	76,661
FIRST CLASS STATIONS								
MARINE HOSPITALS								
1. Baltimore, Md	5,674	1,331	38	158	58,758	4,343	14,300	1,999
2. Boston, Mass	4,358	1,464	40	116	49,649	2,894	7,192	2,800
3. Buffalo, N. Y	3,479	694	15	56	24,210	2,785	9,927	1,561
5. Chicago, Ill	32.798	906	27	114	44,147	31,892	64,225	1,518
6. Cleveland, Ohio	3,806	1,200	24	72	29,813	2,606	6,603	1,502
7. Detroit, Mich	2.520	860	23	61	25,331	1,660	5,113	1,857
8. Evansville, Ind	657	539	9	38	16,730	118	372	188
9. Fort Stanton, N. Mex	1,498	432	34	207	82,467	1,066	2,968	152
10. Key West, Fla	583	222	6	21	7,316	361	833	42
11. Louisville, Ky	1,464	1,104	8	43	18,328	360	1,202	354
12. Memphis, Tenn	1,170	787	18	46	16,679	383	845	282
13. Mobile, Ala	3,288	894	21	87	28,253	2,394	8,953	2,224
14. New Orleans, La	6,236	3,165	58	351	128,865	3,071	15,144	8,106
15. Pittsburgh, Pa	1,748	578	28	55	18,875	1,170	3,535	524

TABLE 2.—*Transactions at United States marine hospitals and other relief stations, fiscal year 1925*—Continued

Station and location	Total number of patients treated	Number of patients treated in hospital	Died	Patients remaining in hospital June 30, 1925	Number of days' relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
FIRST CLASS STATIONS—Continued								
MARINE HOSPITALS—continued								
16. Portland, Me	893	359	5	21	8,202	534	899	588
17. Port Townsend, Wash	1,014	783	23	94	33,158	231	533	49
18. St. Louis, Mo	1,306	556	19	55	20,757	750	3,778	1,154
19. San Francisco, Calif	9 460	2,686	75	263	106,904	6,774	22,746	2,257
20. Savannah, Ga	2,623	960	30	113	37,868	1,663	4,835	487
21. Stapleton, N. Y	4,808	3,282	101	246	99,358	1,526	3,733	426
22. Vineyard Haven, Mass	351	181	1	21	8,796	170	318	12
43. Ellis Island, N. Y	9,802	9,331	58	230	113,200	471	615	293
66. Carville, La	390	290	12	257	82,328	100	276	12
70. New York City, N. Y	26,480	592	10	--------	7,418	25,888	99,007	13,990
82. Norfolk, Va	5,912	2,056	49	163	66,378	3,856	7,974	2,623
Contract overflow hospitals	204	204	9	50	18,112	--------	--------	--------
Total	132,522	35,456	741	2,938	1,151,900	97,066	285,926	45,000
SECOND, THIRD, AND FOURTH CLASS STATIONS, ETC.								
255. Aberdeen, Wash	331	43	------	2	603	288	355	23
200. Albany, N. Y	66	18	------	--------	451	48	239	131
201. Apalachicola, Fla	93	22	------	--------	296	71	181	--------
202. Ashland, Wis	73	15	------	--------	231	58	130	--------
203. Ashtabula, Ohio	342	53	2	4	955	289	504	18
204. Astoria, Oreg	270	58	1	--------	815	212	622	95
301. Balboa Heights, Canal Zone	875	530	10	26	11,520	345	384	1
207. Bangor, Me	26	4	------	--------	68	22	60	93
348. Bath, Me	--------	--------	------	--------	--------	--------	--------	--------
208. Bay City, Mich	39	2	------	--------	16	37	80	5
209. Beaufort, N. C	228	32	2	1	620	196	1,158	38
349. Beaufort, S. C	--------	--------	------	--------	--------	--------	--------	--------
210. Bellingham, Wash	127	19	------	--------	188	108	267	72
213. Boothbay Harbor, Me	42	12	------	1	113	30	55	18
215. Bridgeport, Conn	8	7	------	1	42	1	1	--------
217. Brunswick, Ga	104	14	------	1	99	90	162	23
219. Burlington, Iowa	35	24	1	--------	450	11	16	--------
220. Cairo, Ill	344	58	6	1	844	286	774	13
227. Calais, Me	2	2	------	--------	51	--------	--------	--------
221. Cambridge, Md	42	22	2	--------	347	20	23	--------
223. Cape May, N. J	649	42	------	1	418	607	2,071	71
224. Charleston, S. C	572	75	------	2	735	497	1,234	183
350. Chattanooga, Tenn	1	1	------	--------	2	--------	--------	--------
226. Cincinnati, Ohio	407	58	1	1	1,099	349	707	315
229. Cordova, Alaska	113	31	------	5	773	82	82	2
230. Crisfield, Md	390	17	1	1	142	373	1,015	17
234. Duluth, Minn	497	38	1	5	514	459	720	229
236. Eastport, Me	6	--------	------	--------	--------	6	6	9
237. Edenton, N. C	34	--------	------	--------	--------	34	43	2
238. Elizabeth City, N. C	147	9	------	2	303	138	240	52
351. Ellsworth, Me	--------	--------	------	--------	--------	--------	--------	--------
352. El Paso, Tex	145	13	------	1	612	132	784	141
239. Erie, Pa	430	84	3	4	632	346	912	65
240. Escanaba, Mich	38	12	------	1	268	26	27	6
241. Eureka, Calif	172	54	------	1	597	118	358	44
235. Everett, Wash	12	6	------	1	88	6	17	11
243. Fall River, Mass	2	--------	------	--------	--------	2	3	3
244. Gallipolis, Ohio	121	47	------	3	726	74	229	15
245. Galveston, Tex	4,691	698	6	34	14,834	3,993	13,872	934
246. Georgetown, S. C	69	8	------	--------	95	61	119	4
247. Gloucester, Mass	280	15	1	--------	170	265	1,058	84
248. Grand Haven, Mass	91	9	1	--------	78	82	151	76
249. Green Bay, Wis	61	14	------	--------	101	47	110	30
250. Gulfport, Miss	52	11	------	1	124	41	52	2
251. Hancock, Mich	45	3	------	--------	45	42	83	80
252. Hartford, Conn	11	11	------	2	230	--------	--------	--------
254. Honolulu, T. H	885	239	9	8	5,342	646	1,737	306
359. Houston, Texas	486	110	------	9	2,058	376	1,274	73
258. Jacksonville, Fla	926	185	5	2	1,765	741	986	317
260. Juneau, Alaska	141	47	------	3	937	94	166	31
262. Ketchikan, Alaska	420	124	2	7	1,912	296	474	6
263. Kodiak, Alaska	15	--------	------	--------	--------	15	48	1
264. La Crosse, Wis	28	6	------	--------	103	22	33	13
242. Lee Hall, Va	1,910	--------	------	--------	--------	1,910	3,533	71
265. Lewes, Dela	216	21	------	3	286	195	712	56

TABLE 2.—*Transactions at United States marine hospitals and other relief stations, fiscal year 1925*—Continued

Station and location	Total number of patients treated	Number of patients treated in hospital	Died	Patients remaining in hospital June 30, 1925	Number of days' relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
SECOND, THIRD, AND FOURTH CLASS STATIONS—Continued								
346. Little Rock, Ark	82	4	------	--------	75	78	149	165
266. Los Angeles, Calif	822	523	8	45	11, 216	299	826	881
268. Ludington, Mich	148	17	1	1	333	131	516	25
269. Machias, Me	43	--------	------	--------	---------	43	98	39
270. Manila, P. I	973	192	1	15	4, 847	781	1, 133	732
271. Manistee, Mich	71	9	1	--------	153	62	133	5
272. Manitowoc, Wis	184	61	------	--------	872	123	230	10
273. Marquette, Mich	229	16	------	2	552	213	849	45
274. Marshfield, Oreg	80	21	------	1	182	59	89	57
277. Menominee, Mich	79	3	------	--------	31	76	184	24
347. Miami, Fla	149	58	1	3	532	91	137	84
278. Milwaukee, Wis	1, 851	221	------	8	2, 808	1, 630	3, 279	760
282. Nantucket, Mass	38	--------	------	--------	---------	38	85	8
283. Nashville, Tenn	36	--------	------	--------	---------	36	98	68
284. Natchez, Miss	192	25	1	--------	243	167	450	11
285. New Bedford, Mass	379	13	------	--------	129	366	614	197
286. New Bern, N. C	217	116	2	1	1, 032	101	240	72
288. New Haven, Conn	26	9	------	--------	148	17	39	72
289. New London, Conn	681	222	2	17	3, 616	459	575	170
291. Newport, Ark	21	--------	------	--------	---------	21	74	--------
292. Newport, Oreg	94	3	------	--------	32	91	200	9
293. Newport, R. I	263	71	3	5	1, 076	192	293	24
294. Newport News, Va	200	--------	------	--------	---------	200	299	3
295. Nome, Alaska	34	4	------	--------	13	30	119	13
297. Ogdensburg, N. Y	126	6	------	2	141	120	233	34
298. Oswego, N. Y	137	11	------	--------	98	126	511	48
300. Paducah, Ky	224	22	------	3	271	202	851	18
302. Pensacola, Fla	400	99	1	4	1, 387	301	1, 088	59
303. Perth Amboy, N. J	66	15	3	--------	201	51	106	23
304. Petersburg, Alaska	37	1	------	--------	9	36	168	--------
305. Philadelphia, Pa	5, 342	569	15	9	5, 401	4, 773	14, 174	4, 223
307. Ponce, P. R	36	18	------	--------	309	18	28	--------
308. Port Angeles, Wash	152	16	------	--------	89	136	221	56
309. Port Arthur, Tex	1, 051	159	2	3	1, 866	892	2, 427	69
310. Port Huron, Mich	302	21	1	--------	388	281	875	222
312. Portland, Oreg	1, 189	173	4	10	4, 696	1, 016	2, 846	641
356. Portsmouth, N. H	--------	--------	------	--------	---------	--------	--------	--------
314. Providence, R. I	333	93	2	--------	1, 066	240	396	331
315. Provincetown, Mass	87	--------	------	--------	---------	87	233	28
353. Reedville, Va	--------	--------	------	--------	---------	--------	--------	--------
316. Richmond, Va	82	19	------	2	279	63	136	36
317. Rock Island, Ill	1, 598	11	------	1	91	1, 587	6, 878	1, 903
318. Rockland, Me	134	8	2	--------	105	126	270	36
320. Saginaw, Mich	28	1	------	--------	4	27	58	5
319. St. Thomas, Virgin Islands	84	12	------	4	170	72	118	31
354. Salem, Mass	--------	--------	------	--------	---------	--------	--------	--------
323. San Diego, Calif	488	160	8	19	8, 834	328	595	443
324. Sandusky, Ohio	59	6	------	--------	28	53	104	11
326. San Juan, P. R	987	509	10	94	22, 540	478	747	897
355. San Pedro, Calif	2, 425	5	1	--------	6	2, 420	4, 478	600
327. Sault Ste. Marie, Mich	585	188	4	5	2, 264	397	1, 099	178
329. Seattle, Wash	2, 473	191	11	16	5, 521	2, 282	4, 948	1, 800
331. Sheboygan, Wis	63	2	------	--------	46	61	139	16
328. Sitka, Alaska	158	19	1	1	224	139	205	2
332. Solomons, Md	183	8	------	--------	76	175	244	--------
334. South Bend, Wash	91	25	------	--------	244	66	123	12
361. Southport, N. C	294	24	1	--------	296	270	542	43
335. Superior, Wis	262	53	------	6	719	209	359	20
345. Tacoma, Wash	243	31	------	--------	633	212	518	265
336. Tampa, Fla	561	59	------	1	979	502	789	238
337. Toledo, Ohio	549	100	3	3	1, 167	449	945	229
357. Unalaska, Alaska	13	7	------	--------	216	6	24	--------
338. Vicksburg, Miss	363	83	2	4	1, 164	280	892	183
339. Washington, D. C	4, 595	145	6	6	2, 516	4, 450	26, 389	7, 545
360. Washington, D. C. (dental clinic)	827	--------	------	--------	---------	827	8, 461	--------
340. Washington, N. C	86	6	------	--------	59	80	155	1
341. Whitestone, Va	304	--------	------	--------	---------	304	1, 168	3
362. Wilmington, Del	107	3	------	2	76	104	267	16
342. Wilmington, N. C	399	53	1	3	531	346	924	197
343. Wrangell, Alaska	--------	--------	------	--------	---------	--------	--------	--------

TABLE 2.—*Transactions at United States marine hospitals and other relief stations, fiscal year 1925*—Continued

Station and location	Total number of patients treated	Number of patients treated in hospital	Died	Patients remaining in hospital June 30, 1925	Number of days' relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
MISCELLANEOUS								
Black Mountain (N. C.) Cragmont Sanatorium	5	5	1	4	1,482	--------	--------	--------
Contract physicians for U. S. Coast Guard and Lighthouse Service	2,926	10	------	--------	259	2,916	8,159	1,365
Curtis Bay, Md., U. S. Coast Guard depot	2,752	--------	------	--------	----------	2,752	6,554	407
Freeport, Tex	4	--------	------	--------	----------	4	6	7
New London, Conn., U. S. Coast Guard Academy	3,419	--------	------	--------	----------	3,419	8,242	567
Philadelphia, Pa., U. S. Coast Guard receiving unit	6,196	242	2	5	5,029	5,954	25,443	278
U. S. Coast Guard vessels	9,823	--------	------	--------	----------	9,823	25,133	1,322
Washington, D. C., St. Elizabeths Hospital	132	132	11	98	38,043	--------	--------	--------
Total	76,782	7,831	166	537	190,111	68,951	207,845	31,661
Grand total	209,304	43,287	907	3,475	1,342,011	166,017	493,771	76,661

TABLE 3.—*Relief furnished at United States marine hospitals and other relief stations, fiscal year 1925, classified by beneficiary*

Beneficiary	Class of station	Total number of patients treated	Number of patients treated in hospital	Died	Patients remaining in hospital June 30, 1925	Number of days' relief in hospital	Number of patients furnished office relief	Number of times office relief was furnished	Number of physical examinations
American seamen	First-class stations	67, 336	17, 464	513	1, 910	749, 218	49, 872	168, 577	15, 433
	Other relief stations	33, 047	5, 482	130	382	139, 697	27, 565	65, 187	3, 097
	Total	100, 383	22, 946	643	2, 292	888, 915	77, 437	233, 764	18, 530
Foreign seamen	First class stations	657	439	14	39	11, 882	218	469	547
	Other relief stations	212	108	1		1, 749	104	146	24
	Total	869	547	15	39	13, 631	322	615	571
U. S. Coast Guard	First-class stations	5, 678	2, 023	12	105	45, 563	3, 655	9, 621	5, 936
	Other relief stations	15, 652	960	6	36	14, 514	14, 692	47, 723	4, 774
	Coast Guard vessels	9, 823					9, 823	25, 133	1, 322
	Contract physicians	2, 899	10			259	2, 889	8, 017	1, 362
	Total	34, 052	2, 993	18	141	60, 336	31, 059	90, 494	13, 394
U. S. Army	First-class stations	243	23			398	220	499	304
	Other relief stations	53	6			36	47	89	228
	Total	296	29			434	267	588	532
U. S. Navy and Marine Corps	First class stations	87	53		3	1, 039	34	327	62
	Other relief stations	96	19			138	77	198	4
	Total	183	72		3	1, 177	111	525	66
Mississippi River Commission	First-class stations	336	237	5	15	5, 932	99	272	23
	Other relief stations	237	34	1		350	203	606	2
	Total	573	271	6	15	6, 282	302	878	25
Seamen, U. S. Engineer Corps and Army Transport Service	First class stations	1, 240	597	23	61	19, 377	643	2, 002	40
	Other relief stations	985	151	7	6	2, 450	834	2, 210	33
	Total	2, 225	748	30	67	21, 827	1, 477	4, 212	73
U. S. Lighthouse Service	First-class stations	786	297	13	16	9, 447	489	1, 305	94
	Other relief stations	634	93	1	7	1, 516	541	1, 376	115
	Contract physicians	27					27	142	3
	Total	1, 447	390	14	23	10, 963	1, 057	2, 823	212

U. S. Coast and Geodetic Survey	First-class stations	149	48		1	1,485	101	245	145
	Other relief stations	407	65	1	4	742	342	1,034	395
	Total	556	113	1	5	2,227	443	1,279	540
U. S. Employees' Compensation Commission	First-class stations	38,126	1,533	19	121	47,596	36,593	81,799	4,106
	Other relief stations	7,710	470	7	20	7,984	7,240	42,568	3,235
	Total	45,836	2,003	26	141	55,580	43,833	124,367	7,341
U. S. Veterans' Bureau	First-class stations	3,840	3,651	81	253	93,184	189	2,848	120
	Other relief stations	520	371	11	79	19,374	149	307	800
	Total	4,360	4,022	92	332	112,558	338	3,155	920
U. S. Immigration Service	First-class stations	8,969	8,186	31	139	75,345	783	5,118	187
	Other relief stations	196	60	1	3	1,249	136	556	23
	Total	9,165	8,246	32	142	76,594	919	5,674	210
U. S. Public Health Service officers and employees	First-class stations	3,818	565	17	17	8,322	3,253	11,596	1,036
	Other relief stations	758	1			26	757	6,691	39
	Total	4,576	566	17	17	8,348	4,010	18,287	1,075
Lepers	First-class stations	308	306	12	258	82,361	2	35	
	Other relief stations								
	Total	308	306	12	258	82,361	2	35	
Pilots	First-class stations								4,095
	Other relief stations								2,511
	Total								6,606
U. S. Civil Service applicants	First-class stations								7,348
	Other relief stations								11,430
	Total								18,778
Miscellaneous	First-class stations	949	34	1		751	915	1,213	5,524
	Other relief stations	3,526	1			27	3,525	5,862	2,264
	Total	4,475	35	1		778	4,440	7,075	7,788
Totals	First-class stations	132,522	35,456	741	2,938	1,151,900	97,066	285,926	45,000
	Other relief stations	64,033	7,821	166	537	189,852	56,212	174,553	28,974
	Coast Guard vessels	9,823					9,823	25,133	1,322
	Contract physicians	2,926	10			259	2,916	8,159	1,365
	Grand total	209,304	43,287	907	3,475	1,342,011	166,017	493,771	76,661

TABLE 4.—*Causes of admission for discharged patients and condition on discharge, United States marine hospitals and other relief stations, fiscal year 1925*

Disease or condition	Number having specified disease or injury [1]					Condition on discharge of patients admitted for specified disease or injury				
	Major condition for which admitted [2]	Condition second in importance	Condition third in importance [3]	Sequelæ to major condition	Total number of persons having each specified disease or injury	Cured	Improved	Not improved	Died	Other conditions
Abnormalities and congenital malformations	39	------	------	------	39	13	11	2	-----	13
Blood and blood-forming organs, diseases and injuries of	34	------	------	------	34	3	15	2	5	9
Bones and cartilages, diseases and injuries of	1,594	------	------	------	1,594	386	715	14	38	441
Circulatory system, diseases and injuries of:										
Heart disease, valvular	313	258	58	2	631	1	174	5	47	86
Varicose veins	152	72	23	------	247	56	65	1	1	29
All others	640	------	------	------	640	101	298	9	85	147
Communicable and infectious diseases, not including tuberculosis and venereal:										
Conjunctivitis, granular trachomatous	24	10	2	------	36	19	------	------	-----	5
Dengue	9	------	------	------	9	7	2	------	-----	------
Influenza	709	33	3	------	745	433	218	------	3	55
Malaria	437	42	10	------	489	163	194	------	5	75
Rheumatic fever, acute	145	8	3	3	159	60	60	------	2	23
Typhoid fever	122	13	3	------	138	79	12	------	18	13
All others	375	------	------	------	375	242	89	1	5	38
Dental	205	------	------	------	205	55	81	------	-----	69
Digestive system, diseases and injuries of:										
Appendicitis	544	118	23	------	685	338	138	------	16	52
Gastritis	400	36	7	5	448	124	227	1	4	44
Hemorrhoids	406	127	55	2	590	195	154	1	-----	56
All others	967	------	------	------	967	314	461	3	19	170
Ear, nose, and throat, diseases and injuries of:										
Deviation, nasal septum	219	99	38	------	356	81	58	1	-----	79
Otitis media	187	108	28	2	325	30	112	1	1	43
Tonsilitis	1,820	516	127	------	2,463	1,041	510	------	4	265
All others	641	------	------	------	641	244	275	1	5	116
Endocrines, diseases and injuries of	147	------	------	------	147	6	77	3	11	50
Eye and annexa, diseases and injuries of:										
Conjunctivitis	69	25	11	5	110	13	41	1	1	13
All others	290	------	------	------	290	53	131	12	-----	94
Genito-urinary system, diseases and injuries of (exclusive of venereal):										
Nephritis	221	130	52	5	408	7	108	1	56	49
All others	893	------	------	------	893	221	464	4	9	195
Hernia	1,140	------	------	------	1,140	671	271	8	14	176
Joints and bursæ, diseases and injuries of:										
Arthritis	567	129	36	264	996	78	363	6	8	112
All others	407	------	------	------	407	80	213	8	5	101
Leprosy	50	5	------	------	55	------	4	------	12	34
Lymphatic system, diseases and injuries of:										
Lymphadenitis	354	46	10	254	664	105	167	------	-----	82
All others	19	------	------	------	19	8	7	------	2	2
Muscles, fascæ, tendons, and tendon sheaths, diseases and injuries of	976	------	------	------	976	314	487	4	4	167

[1] Except in the case of specific diseases, statistics are given only for the major condition for which admitted.
[2] Represents number of discharges for each condition.
[3] Where sequelæ were given, no third diagnosis was recorded.

TABLE 4.—*Causes of admission for discharged patients and condition on discharge, United States marine hospitals and other relief stations, fiscal year 1925*—Con.

Disease or condition	Number having specified disease or injury					Condition on discharge of patients admitted for specified disease or injury				
	Major condition for which admitted	Condition second in importance	Condition third in importance	Sequelæ to major condition	Total number of persons having each specified disease or injury	Cured	Improved	Not improved	Died	Other conditions
Nervous system, diseases and injuries of:										
Epilepsy without psychosis	65	8	3	3	79	1	26	2	-----	36
Neuritis	195	29	10	6	240	45	106	3	1	40
All others	406	-------	-------	-------	406	67	188	13	19	119
Obstetric and gynocological conditions	14	-------	-------	-------	14	5	7	-------	-----	2
Parasitic diseases:										
Uncinariasis	39	47	14	-------	100	5	18	-------	1	15
All others	133	-------	-------	-------	133	26	73	-------	-----	34
Poisonings and intoxications:										
Alcohol (ethyl) poisoning, acute	197	22	4	-------	223	97	75	-------	1	24
Alcoholism, chronic (without psychosis)	43	10	2	-------	55	13	24	1	-----	5
All others	110	-------	-------	-------	110	46	40	-------	-----	24
Psychiatric diseases:										
Drug addiction without psychosis	30	5	3	-------	38	1	13	1	-----	15
All others	280	-------	-------	-------	280	31	79	14	13	143
Respiratory system, diseases and injuries of (exclusive of tuberculosis):										
Asthma	167	64	9	-------	240	13	95	4	5	50
Bronchitis	827	231	46	-------	1, 104	313	376	5	6	127
Pleurisy	213	102	13	23	351	64	86	2	8	53
Pneumonia	297	90	22	28	437	145	54	-------	73	25
All others	18	-------	-------	-------	18	4	5	-------	1	8
Skin and its appendages, diseases and injuries of	740	-------	-------	-------	740	269	346	1	5	119
Tuberculosis:										
Tuberculosis, pulmonary	1, 557	198	42	-------	1, 797	-------	170	10	207	1, 170
Other forms	95	42	15	8	160	9	35	1	19	31
Tumors:										
Carcinoma	126	37	9	-------	172	10	22	6	46	42
All others	188	-------	-------	-------	188	75	61	5	13	34
Venereal diseases:										
Chancroidal infections	779	109	13	350	1, 251	183	431	-------	1	164
Gonococcus infections	2, 693	254	40	58	3, 045	362	1, 611	3	2	715
Syphilis	1, 740	984	186	-------	2, 910	22	1, 090	6	26	596
Unclassified	44	-------	-------	-------	44	16	18	-------	-----	10
Inoculations	11	-------	-------	-------	11	-------	-------	-------	-----	11
Under observation	985	-------	-------	-------	985	-------	-------	-------	-----	985
Miscellaneous:										
Cellulitis	224	24	-------	45	293	79	99	-------	-----	46
All others	4, 577	-------	-------	-------	4, 577	1, 477	1, 982	15	52	1, 051
Total	31, 908	-------	-------	-------	-------	8, 919	13, 332	181	879	8, 597

NOTE.—This table does not include immigration patients discharged from United States Marine Hospital No. 43, Ellis Island, N. Y.

TABLE 5.—*Causes of death in United States marine hospitals and other relief stations during fiscal year 1925*

International list No.	Cause of death	Number of deaths
	PART I	
	I. Epidemic, endemic, and infectious diseases	
1	Typhoid and paratyphoid fever	20
5	Malaria	3
8	Scarlet fever	1
10	Diphtheria	1
11	Influenza	2
20	Leprosy	5
21	Erysipelas	2
22	Acute anterior poliomyelitis	1
31	Tuberculosis of the respiratory system	213
32	Tuberculosis of the meninges and central nervous system	5
33	Tuberculosis of the intestines and peritoneum	3
34	Tuberculosis of the vertebral column	3
36	Tuberculosis of other organs	4
37	Disseminated tuberculosis	7
38	Syphilis	14
41	Purulent infection, septicemia	3
	II. General diseases not included in Class I	
43	Cancer of the buccal cavity	3
44	Cancer of the stomach or liver	23
45	Cancer of the peritoneum, intestines, or rectum	9
46	Cancer of the female genital organs	1
49	Cancer of other or unspecified organs	36
50	Benign tumors and tumors not returned as malignant	2
51	Acute rheumatic fever	1
57	Diabetes mellitus	9
58	Anemia or chlorosis	5
60	Diseases of the thyroid gland	1
65	Leukemia and Hodgkin's disease	3
66	Alcoholism, acute and chronic	3
	III. Diseases of the nervous system and of the organs of special sense	
70	Encephalitis	1
71	Meningitis	6
72	Tabes dorsalis (locomotor ataxia)	1
73	Other diseases of the spinal cord	1
74	Cerebral hemorrhage, apoplexy	23
75	Paralysis without specified cause	6
76	General paralysis of the insane	3
77	Other forms of mental alienation	1
85	Diseases of the eye and annexa	1
86	Diseases of the ear and of the mastoid process	2
	IV. Diseases of the circulatory system	
87	Pericarditis	1
88	Endocarditis and myocarditis	6
89	Angina pectoris	2
90	Other diseases of the heart	102
91	Diseases of the arteries	17
92	Embolism and thrombosis (not cerebral)	2
95	Hemorrhage without specified cause	2
	V. Diseases of the respiratory system	
98	Diseases of the larynx	1
99	Bronchitis	1
100	Bronchopneumonia	25
101	Pneumonia	67
102	Pleurisy	5
105	Asthma	1
107	Other diseases of the respiratory system (tuberculosis excepted)	5
	VI. Diseases of the digestive system	
110	Diseases of the esophagus	1
111	Ulcer of the stomach and duodenum	12
112	Other diseases of the stomach	3
114	Diarrhea and enteritis	1
117	Appendicitis and typhlitis	17
118	Hernia	18
120	Acute yellow atrophy of the liver	1
122	Cirrhosis of the liver	3
123	Biliary calculi	2

Table 5.—*Causes of death in United States marine hospitals and other relief stations during fiscal year 1925*—Continued

International list No.	Cause of death	Number of deaths
	VI. Diseases of the digestive system—Continued	
124	Other diseases of the liver	4
125	Diseases of the pancreas	1
126	Peritonitis without specified cause	5
127	Other diseases of the digestive system (cancer and tuberculosis excepted)	1
	VII. Nonvenereal diseases of the genito-urinary system and annexa	
128	Acute nephritis	22
129	Chronic nephritis	51
131	Other diseases of the kidneys and annexa	1
132	Calculi of the urinary passages	1
133	Diseases of the bladder	1
134	Diseases of the urethra, urinary abscess, etc	1
135	Diseases of the prostate	3
	IX. Diseases of the skin and of the cellular tissue	
151	Gangrene	2
153	Acute abscess	2
154	Other diseases of the skin and annexa	1
	X. Diseases of the bones and of the organs of locomotion	
155	Diseases of the bones (tuberculosis excepted)	1
	XIV. External causes	
170	Suicide by firearms	1
177	Other acute accidental poisonings (gas excepted)	1
179	Accidental burns (conflagration excepted)	4
182	Accidental drowning	2
183	Accidental traumatism by firearms (wounds of war excepted)	2
184	Accidental traumatism by cutting or piercing instruments	3
185	Accidental traumatism by fall	14
187	Accidental traumatism by machines	3
188	Accidental traumatism by other crushing (vehicles, railways, landslides, etc)	6
190	Wounds of war	1
193	Excessive cold	1
199	Homicide	1
201	Fracture (cause not specified)	10
202	Other external violence	4
203	Violent deaths of unknown causation	4
	XV. Ill-defined diseases	
205	Cause of deaths not specified or ill-defined	2
	Total	879
	PART II	
	Causes of death of immigration patients at U. S. Marine Hospital 43, Ellis Island, N.Y.	
1	Typhoid and paratyphoid fever	1
7	Measles	2
8	Scarlet fever	1
9	Whooping cough	1
11	Influenza	1
31	Tuberculosis of the respiratory system	3
49	Cancer of unspecified organs	2
90	Other diseases of the heart	3
100	Bronchopneumonia	4
101	Pneumonia	2
118	Hernia, intestinal obstruction	1
129	Nephritis, chronic	2
132	Calculi of the urinary passages	1
149	Following childbirth (not otherwise defined)	3
161	Premature birth	1
	Total	28
	Grand total	907

TABLE 6.—*Number of patients of each class of beneficiary discharged from United States marine hospitals and other relief stations during the fiscal year 1925, by broad groups of conditions*

Group	Class of beneficiary															
	Total	American seamen	Foreign seamen	U. S. Coast Guard	U. S. Army	U. S. Navy and Marine Corps	Mississippi River Commission	Seamen, U. S. Engineer Corps and Army Transport Service	U. S. Lighthouse Service	U. S. Coast and Geodetic Survey	U. S. Employees' Compensation Commission	U. S. Veterans' Bureau	U. S. Immigration Service	U. S. Public Health Service officers and employees	Lepers	Miscellaneous
Abnormalities and congenital malformations	39	27	--------	3	1	--------	--------	2	--------	--------	--------	6	--------	--------	--------	--------
Blood and blood-forming organs, diseases and injuries of	34	20	1	3	--------	--------	--------	--------	1	--------	1	6	--------	2	--------	--------
Bones and cartilages, diseases and injuries of	1,594	1,027	30	90	3	5	7	12	21	5	321	62	2	7	--------	2
Circulatory system, diseases and injuries of	1,105	749	8	61	1	1	11	21	28	2	24	181	4	13	--------	1
Communicable and infectious diseases, not including tuberculosis and venereal	1,821	1,206	47	290	2	3	58	47	15	21	7	29	11	84	--------	1
Dental	205	121	5	39	--------	--------	5	4	--------	1	1	27	--------	2	--------	--------
Digestive system, diseases and injuries of	2,317	1,538	37	252	3	13	26	66	47	7	15	249	2	60	--------	2
Ear, nose, and throat, diseases and injuries of	2,867	1,445	11	484	2	12	22	33	33	7	19	662	6	129	--------	2
Endocrines, diseases and injuries of	147	81	--------	4	--------	--------	--------	6	4	--------	2	47	1	2	--------	--------
Eye and annexa, diseases and injuries of	359	226	2	50	--------	--------	3	8	8	1	34	21	--------	5	--------	1
Genito-urinary system, diseases and injuries of (exclusive of venereal)	1,114	807	17	83	1	2	5	21	16	7	20	105	9	21	--------	--------
Hernia	1,140	746	6	54	--------	2	--------	19	14	2	212	76	--------	9	--------	--------
Joints and bursae, diseases and injuries of	974	629	18	83	--------	1	9	11	10	4	80	116	--------	13	--------	--------
Leprosy	50	1	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	49	--------
Lymphatic system, diseases and injuries of	373	310	8	17	--------	--------	4	6	2	3	8	9	5	1	--------	--------
Muscles, fasciae, tendons and tendon sheaths, diseases and injuries of	976	585	10	113	1	4	9	12	9	8	175	20	--------	30	--------	--------
Nervous system, diseases and injuries of	666	407	12	58	--------	2	1	17	11	2	22	120	2	11	--------	1
Obstetrics and gynecological conditions	14	10	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	4	--------	--------
Parasitic diseases	172	75	3	10	1	--------	1	3	1	--------	4	70	1	1	--------	2
Poisonings and intoxications	350	246	10	25	3	2	5	11	2	--------	24	15	--------	6	--------	1
Psychiatric diseases	310	192	4	23	1	--------	--------	2	7	--------	13	61	4	2	--------	1

Respiratory system, diseases and injuries of (exclusive of tuberculosis)	1,522	1,020	16	151	5	7	28	26	20	3	11	185	4	45		1
Skin and its appendages, diseases and injuries of	740	493	11	108		2	5	23	9	4	16	52	2	14		1
Tuberculosis	1,652	861	17	33		1	7	23	7	2	13	673	5	9		1
Tumors	314	216	1	11			1	13	7	1	13	42	2	6		1
Venereal diseases	5,256	4,337	121	375			14	80	39	21		132	129	7		1
Inoculations	11	2		8										1		
Under observation	988	311	18	73	1	1	7	7	10		81	460	13	6		
Miscellaneous	4,798	3,040	97	353	3	11	27	105	52	14	745	265	14	59		13
Total cases	31,908	20,728	510	2,854	28	69	255	578	373	115	1,861	3,691	216	549	49	32

NOTE.—This table does not include immigration patients discharged from U. S. Marine Hospital No. 43, Ellis Island, N. Y.

TABLE 7.—*Number of days in hospital for patients discharged during fiscal year 1925 from United States marine hospitals and other relief stations, by broad groups of conditions and class of beneficiary*

Group	Class of beneficiary														
	Total	American seamen	Foreign seamen	U. S. Coast Guard	U. S. Army	U. S. Navy and Marine Corps	Mississippi River Commission	Seamen U. S. Engineer Corps and Army Transport Service	U. S. Lighthouse Service	U. S. Coast and Geodetic Survey	U. S. Employees' Compensation Commission	U. S. Veterans' Bureau	U. S. Immigration Service	U. S. Public Health Service officers and employees	Lepers	Miscellaneous
Abnormalities and congenital malformations	1, 221	1, 038	--------	90	1	--------	--------	37	--------	--------	--------	55	--------	--------	--------	--------
Blood and blood-forming organs, diseases and injuries of	2, 923	2, 333	16	187	--------	--------	--------	--------	45	--------	6	173	--------	163	--------	--------
Bones and cartilages, diseases and injuries of	85, 346	57, 992	1, 667	2, 890	191	54	232	841	970	228	16, 610	3, 303	74	213	--------	81
Circulatory system, diseases and injuries of	61, 241	50, 617	129	1, 510	2	19	146	776	1, 721	113	606	5, 304	38	256	--------	4
Communicable and infectious diseases, not including tuberculosis and venereal	36, 613	26, 292	1, 065	3, 753	4	19	997	834	128	474	297	1, 516	281	950	--------	3
Dental	2, 878	1, 668	23	391	--------	--------	99	59	--------	13	21	586	--------	18	--------	--------
Digestive system, diseases and injuries of	52, 584	35, 998	621	4, 614	27	253	441	1, 493	665	114	347	7, 097	35	866	--------	13
Ear, nose and throat, diseases and injuries of	38, 672	21, 917	167	6, 505	31	114	273	738	363	125	186	7, 336	52	744	--------	121
Endocrines, diseases and injuries of	7, 543	4, 325	--------	576	--------	--------	--------	110	211	--------	216	2, 028	8	69	--------	--------
Eye and annexa, diseases and injuries of	9, 441	6, 446	23	928	--------	--------	15	461	104	3	593	546	--------	317	--------	5
Genito-urinary system, diseases and injuries of (exclusive of venereal)	33, 949	25, 424	399	1, 562	28	49	85	550	427	85	548	4, 058	274	460	--------	--------
Hernia	39, 654	28, 239	202	1, 781	--------	68	--------	547	768	61	5, 533	2, 250	--------	205	--------	--------
Joints and bursae, diseases and injuries of	48, 379	33, 105	640	2, 354	--------	57	209	470	482	39	3, 171	6, 877	--------	975	--------	--------
Leprosy	42, 151	636	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	41, 515	--------
Lymphatic system, diseases and injuries of	14, 225	12, 128	220	382	--------	--------	90	148	43	61	249	769	116	19	--------	--------
Muscles, fasciae, tendons and tendon sheaths, diseases and injuries of	18, 954	11, 572	99	1, 889	2	7	96	88	103	89	4, 030	767	--------	212	--------	--------
Nervous system, diseases and injuries of	42, 807	33, 252	283	2, 130	--------	6	37	967	617	122	584	4, 485	9	297	--------	18
Obstetric and gynecological conditions	244	211	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	33	--------	--------
Parasitic diseases	5, 835	2, 605	51	206	9	--------	45	54	11	--------	165	2, 595	27	19	--------	48
Poisonings and intoxications	3, 647	2, 519	133	142	17	10	41	276	26	--------	314	132	--------	36	--------	1
Psychiatric diseases	43, 177	35, 890	29	1, 260	10	--------	--------	40	246	--------	907	4, 720	33	15	--------	27

Respiratory system, diseases and injuries of (exclusive of tuberculosis)	42, 890	31, 359	219	2, 462	102	221	470	874	316	86	161	6, 107	172	340	--------	1
Skin and its appendages, diseases and injuries of	19, 392	13, 542	390	1, 801	--------	18	37	590	207	16	601	1, 319	18	137	--------	716
Tuberculosis	182, 414	152, 658	1, 207	3, 898	--------	151	1, 404	2, 219	508	34	1, 558	17, 448	171	515	--------	643
Tumors	12, 978	9, 896	23	236	--------	--------	10	258	345	13	427	1, 318	184	265	--------	3
Venereal diseases	194, 203	163, 610	3, 676	10, 484	--------	--------	467	2, 769	1, 643	634	--------	5, 997	4, 510	133	--------	10
Inoculations	54	12	--------	40	--------	--------	--------	--------	--------	--------	--------	--------	--------	2	--------	--------
Under observation	8, 603	2, 455	105	744	11	2	68	54	94	--------	530	4, 447	62	31	--------	--------
Miscellaneous	111, 583	74, 673	1, 908	5, 739	9	105	301	2, 004	689	141	16, 534	8, 488	167	569	--------	256
Total days	1, 163, 331	842, 412	13, 295	58, 554	444	1, 153	5, 563	17, 257	10, 732	2, 451	54, 194	99, 721	6, 231	7, 859	41, 515	1, 950

NOTE.—This table does not include immigration patients discharged from U. S. Marine Hospital No. 43, Ellis Island, N. Y.

TABLE 8.—*Classification of out-patient treatments furnished at United States marine hospitals and other relief stations, fiscal year 1925*

Station	General medical	Dental	Ear, eye, nose, and throat	Neuro-psychiatric	Tuber-culosis	Surgical	Genito-urinary	Inoculations and vaccinations	X ray	Physio-therapy	Total
Marine hospitals	60, 706	23, 777	25, 802	28	220	93, 742	48, 971	3, 766	2, 332	26, 582	285, 926
Other relief stations	54, 892	13, 434	10, 394	243	298	42, 910	24, 506	12, 996	1, 492	13, 388	174, 553
Coast Guard vessels	9, 720	651	2, 377	34	3	6, 849	3, 225	2, 237	2	35	25, 133
Contract physicians	4, 645	35	381	44	8	1, 015	171	1, 857	3	--------	8, 159
Grand total	129, 963	37, 897	38, 954	349	529	144, 516	76, 873	20, 856	3, 829	40, 005	493, 771

DIVISION OF VENEREAL DISEASES

In charge of Asst. Surg. Gen. Mark J. White

The functions and duties of this division as imposed by the organic act, are (1) to study and investigate the cause, treatment, and prevention of venereal diseases; (2) to cooperate with State boards or departments of health for the prevention and control of such diseases within the States; and (3) to control and prevent the spread of these diseases in interstate traffic. The provision for cooperating with the State departments of health provides concurrent opportunities for practical studies and investigations of the social and clinical causes, treatment, and prevention of these diseases. The results of these studies are shown in the publications of the division and in the progressive improvement of the control measures. During the past seven years this cooperative control resulted in the establishment of more than 900 locally supported clinics for the examination and treatment of indigent patients; a very much larger body of physicians has been interested in actively cooperating with the health authorities; educational pamphlets, motion picture films, stereopticon slides and poster exhibits have been developed and made available through each of the State boards of health; schools and colleges have become interested in the teaching of sex hygiene; standard laws and ordinances have been enacted, and throughout the country there has arisen an indicative public attitude which is reflected in the growing interest of life insurance companies, large industries, labor organizations, civic organizations, juvenile courts and institutions. A review of the field to be covered and the work that has been done indicates an outstanding achievement in modern public health maintenance.

However, despite the encouraging productiveness of this cooperative program between the Federal and State Governments, with its accompanying opportunities for studies and investigations, an unfavorable tendency is noted which must be viewed frankly. This relates to the obstacles to the effective continuation of this cooperative work. The marked reduction in the appropriations for the maintenance and expenses of the division of venereal diseases makes it increasingly more difficult to perform the duties specifically imposed by Congress.

There is perhaps no more essential and productive health activity than that for the relief and prevention of venereal diseases, and the maintenance of this cooperative activity is of transcendent importance. The appropriation for the division for the fiscal year 1926 is but $75,000, whereas formerly it was $200,000.

Clinical Studies and Investigations

1. Of outstanding interest during the fiscal year 1925 was the conference of venereal disease control officers of State health departments and the United States Public Health Service. This conference

which was held at Hot Springs, Ark., December 1–3, 1924, was given over largely to the consideration of the report of a special committee which had been appointed the previous year to make a study of treatment methods and policies in effect at the various venereal disease clinics throughout the United States. The conclusions of the conference, as published in V. D. Bulletin No. 77 of the United States Public Health Service, embody recommendations for betterment which are of great importance to a successful venereal disease control program. The numerous and widespread requests for this bulletin have been noteworthy and a very large number have been distributed.

2. The venereal disease clinic at Hot Springs, Ark., is maintained for the study and investigation of methods of diagnosis, treatment, and clinic administration. During the year 1925, 3,411 indigent patients were examined at the Hot Springs clinic. Of this number, 2,011 had syphilis, as against 1,447 for the preceding year; 771 had gonorrhea, as against 739 during 1924; only five cases of chancroid were noted, in comparison with 11 for 1924.

Diagnosis

Year	Wassermann tests			Spinal punctures, total number	Dark field examinations		
	Total number	+	−		Total number	+	−
1924	4,671	1,998	2,673	171	66	35	31
1925	4,990	1,799	3,191	351	71	53	18
Increase	319		518	180	5	18	
Decrease		199					13

Treatment

Year	Arsphenamin	Mercury	Spinal treatments	G. C.	Chancroid	Total
1924	9,217	12,820	193	18,646	110	40,986
1925	12,713	18,580	285	19,315	60	50,953
Increase	3,496	5,760	92	669		9,967
Decrease					50	

There were 65,313 visits to the clinic during 1925 for examination, treatment, and advice. This number exceeds by 21,489 the visits to the clinic in 1924.

The actual medical work at the Hot Springs clinic is but a part of the activities. With so much clinical material available, interesting and important studies are conducted with a view to the improvement of clinic procedure. Many refinements in group treatment have been effected which have been of value to venereal disease clinics throughout the States. Representatives from boards of health of other States who were in attendance at the venereal disease conference held at Hot Springs in December had an opportunity to examine and study the methods of group management whereby hundreds of diagnoses are made and treatments given by a limited medical personnel.

Due to the curtailment of appropriations for the fiscal year 1926 it was necessary, toward the close of 1925, to reduce the Public

Health Service personnel at the clinic from three to one. It is obvious that this action will markedly affect the accomplishments of the clinic. In fact, it would have been necessary to discontinue the work had not the National Park Service been able to assist the clinic temporarily with the services of some of its own employees pending the securing of adequate appropriations to the Public Health Service for resuming the work.

If this important productive activity is to be continued, it is essential that sufficient funds be made available so that adequate personnel may be employed.

Every patient treated at the clinic is given special instruction in the nature of venereal diseases and the necessity for prompt curative treatment and is urged to convey this information to his acquaintances when he returns home.

3. The relation of syphilis to crime and delinquency has been the subject of special attention. Studies are also being conducted to ascertain the extent to which syphilis affects mental health. Particular attention is being directed toward the problem of congenital syphilis and the examination and treatment of expectant mothers.

Social Studies and Investigations

1. There were published during the year V. D. Bulletin No. 78, "Venereal Disease Incidence at Different Ages in Certain Southern States," and V. D. Bulletin No. 79, "A Statistical Study of 60,000 Cases of Venereal Disease." These studies classify large groups of venereally infected persons according to color, sex, age, and marital condition. They provide very useful information in connection with venereal disease control activities.

2. A representative of the division was detailed to cooperate in the enlargement of control activities in the State of Utah. Special attention was given to securing the cooperation of educational authorities for the institution of sex education in schools; the cooperation of physicians, druggists, juvenile courts, and probation officials; the interest of law enforcement agencies in correcting conditions prejudicial to the control of venereal diseases; and the assistance of social service agencies and civic organizations in promoting community sentiment which would tend to ameliorate conditions known to facilitate the spread of these diseases. The work in this State has resulted in a very general program of community action. Similar work and study was carried on in the State of Nevada, and further work is now contemplated in the State of Idaho. It is expected that this study and investigation of conditions in these contiguous States will develop an improved plan for the more effective supervision of infected persons traveling from State to State and bring about more active interest and cooperation of probation agencies and courts.

3. A special study has been made to determine appropriate methods by which venereal disease educational work could be carried on in cooperation with police and parole officers and the matrons and superintendents of industrial schools and detention homes. It is expected that effective activity in this undertaking will be developed, not only in the detection and treatment of infected persons and their

infected partners, but in the venereal disease education of the noninfected as well as of the infected.

4. For the purpose of increasing the effectiveness of the educational pamphlets, card exhibits, and other materials intended for older boys and young men, studies were made to determine the viewpoint of such persons and special attention will be given to the adaptation of publications to meet the indications.

Publications

1. The monthly publication Venereal Disease Information was established in May, 1923, for use in the cooperative work with State health departments. In order to supply the demand for this pamphlet, authority was secured for the printing of it monthly at the Government Printing Office. This arrangement permitted the sale of Veneral Disease Information by subscription of 50 cents per year. The interest in this publication is apparently increasing daily and the subscription list is constantly being enlarged. There are more than 6,000 paying subscribers and an official free mailing list of 3,000 names. The primary purpose of Venereal Disease Information is to interest physicians in private and official practice in becoming more fully acquainted with the general problem of venereal disease control and in actively cooperating with the health authorities. It is therefore advantageous to furnish physicians in health departments, State institutions, and cooperating physicians with information concerning the new developments in the work. The division, accordingly, reviews the medical literature and prepares abstracts of all articles which have an important bearing on the subject. In order to cover the field thoroughly, approximately 440 English language and foreign language journals are read. While much of the material prepared from the reading of such articles is not published in the Venereal Disease Information, files of the abstracts are maintained in the division so that, upon request, the service is able to supply a full reference list and bibliography on any subject relating to these diseases. As an example, the service has prepared from abstracts on file in the division three compilations, one dealing with congenital syphilis; a second, syphilis of the nervous system; and the third, syphilis of pregnancy. Approximately 12,000 copies of these compilations have been distributed. The service has not been able to meet the demand, and a method whereby these compilations can be printed at the Government Printing Office and made available by purchase is being considered. In addition to abstracts of scientific articles relating to the venereal diseases which appear in Venereal Disease Information, there are usually one or more special articles dealing with some phase of the subject. Some of these articles have proved so popular that it has been necessary to secure reprints of them for distribution.

The growth of Venereal Disease Information has more than justified its establishment. A distribution list of 9,000 means that during a period of one year more than 100,000 copies of this journal are being placed in the hands of a group, who can contribute more than any other to the advancement of venereal disease control. Through cooperation with the State boards of health, the subscription list of Venereal Disease Information is being greatly extended.

2. By means of the bulletin, Social Pathology, which is prepared for use in its cooperative work with the State health departments, the service supplies to official and unofficial agencies information relating to the socioeconomic aspects of the venereal disease problem not only in this country but in other countries.

The demand for this bulletin is greater than the supply, because it is not printed and made available upon subscription. Such a plan would not only supply the demand but would effect economy in its preparation and distribution.

3. The following publications were issued during the year:

V. D. Bulletin No. 73a. Placard—The Relief and Prevention of Venereal Diseases.

V. D. Bulletin No. 77. Transactions of the Conference of Venereal Disease Control Officers of the State Health Departments and the United States Public Health Service, 1924.

V. D. Bulletin No. 78. Venereal Disease Incidence at Different Ages in Certain Southern States.

V. D. Bulletin No. 79. A Statistical Study of 60,000 Cases of Venereal Diseases.

4. An illustrated circular announcing the card exhibit, "Venereal Disease Menace," was issued. The circular invites attention to the nature of the exhibit, explaining how it may be used in presenting information concerning the venereal diseases and how they affect community as well as individual life. This is an exhibit for adults and is sold by the Superintendent of Documents, Government Printing Office.

Educational Work with Newspapers, Journals, Etc.

An important development in the cooperative campaign for the control of the venereal diseases during the past fiscal year was the extension of the division's educational activities to newspaper and magazine readers. It is believed that much good will result from the publication of articles giving appropriate information concerning syphilis and gonorrhea, just as similar information has resulted in widespread good in the combating of other dangerous communicable diseases. The helpful attitude of the press and of the American Federation of Labor in this matter has been most encouraging. The International Labor News Service has distributed and secured wide publication of a series of articles entitled "Venereal Diseases: Destroyers of Health and Wealth." The editors of many Negro newspapers also appreciating the importance of the matter and the educational value of these articles gave them due publicity. Some of the leading daily newspapers also have dealt editorially with the economic aspects of several disabilities caused by venereal diseases, and it is felt that this kind of publicity for the production of fitness will meet popular approval.

Special Work with the Colored Population

The division again participated in the observance of National Negro Health Week, April 5 to 11, 1925, held under the auspices of the Annual Tuskegee Negro Conference and the National Negro Business League. The division, as in former years, prepared the Health Week Bulletin, 30,000 copies being printed by the Government Printing Office. This number does not indicate the extent to which the bulletin was used, however, as the Memphis Department of Health alone printed and distributed an equal number. Other organizations reprinted and distributed many copies of the publication. The scope and influence of this Negro Health Week have grown steadily during the 11 years of its existence. This year a greater number of State health departments than ever before took an active part in promoting the work.

Cooperative Work with State Health Departments

In general this work was as follows:

1. Promoting community interest by conferences with local authorities, civic organizations, editors, and other public-spirited citizens in ameliorating conditions that facilitate the spread of the diseases.
2. Promoting school instruction in fitness and in sex education as an aid in the prevention of venereal diseases.
3. Delivering venereal disease lectures to selected groups of workers with the view of obtaining their cooperation with the health authorities in the production of fitness.

This cooperative work was carried on in the following States: Georgia, New York, Indiana, Utah, Nevada, Washington, Mississippi, Pennsylvania, Missouri, Kentucky, and Alabama.

As in previous years, a representative of the service has been detailed to assist many of the State boards of health in the prevention of venereal diseases by establishing courses of necessary sex instruction. Intensive work was carried on in the States of New York, Indiana, and Georgia. The 12-reel motion picture film, "The Science of Life," prepared under the direction of the Public Health Service was shown at all these meetings. The work for the fiscal year 1925 opened in the State of Georgia, where 16 lectures were held before 1,740 pupils of secondary schools.

In the State of Indiana, a very successful program was carried out. At 71 meetings in this State there was a total attendance of 12,653. This work concluded with a cooperative program with the State Department of Health of New York, which extended over a period of five weeks, during which time more than 40,000 pupils in the New York City schools were reached. Lectures on the need for the inclusion of a course of sex instruction were also given before students and teachers of Cornell and Columbia Universities, New York. Audiences at these two institutions totaled 1,320.

Another interesting phase of fitness and sex education in schools was a "Keeping fit" contest carried on by the State Board of Health of Mississippi. The service detailed a representative to cooperate in this activity and to make pertinent studies and investigations. Arrangements were made with the schools for the study of the "Keeping Fit" pamphlet as a part of the English course, due credit being given for such work. In every case where possible the "Keeping fit" exhibit was displayed before the high school pupils. Lectures were given in 145 high schools in 76 of the 82 counties, by means of which 23,000 high school students were reached. At the conclusion of this campaign the students were asked to submit essays on the material contained in the pamphlets and exhibits and also on the subject discussed at the lecture. Through cooperation with banks and other commercial organizations, monetary prizes were offered for the best essays. The interest aroused by this plan was marked and its practicable value in the prevention of venereal disease is unquestionable. A similar work is being undertaken in the State of Indiana.

The service also cooperated with the State Board of Health of Mississippi in carrying on a campaign of venereal disease education among railway employees. The fullest cooperation was extended by the railroad organizations. Lectures were given to groups of men during working hours. Motion picture showings were arranged for railroad workers in various junction towns. Letters were written to the employees by officials of the railroad requesting their attendance at such motion picture showings, and the attendance in every case was good. Pamphlets on the venereal diseases were purchased by the railroad companies and distributed among the employees. Card exhibits were purchased and displayed in rest rooms and meeting places. It is planned to extend this educational work and investigation to railway systems in other States.

Studies and investigations of another character were conducted in the State of Georgia where a representative of the Public Health Service in cooperation with the State board of health visited summer schools for teachers for the purpose of presenting to them the problem of sex instruction in schools. Special courses of study prepared by the Public Health Service were distributed at these meetings and various topics for study and discussion were given. The result of this activity has been most encouraging.

The State board of health also desired to promote the introduction of sex instruction as a part of the curriculum of secondary schools. This work was carried on in both colored and white schools, and was conducted largely through meetings of women's clubs and parent-teacher associations. Widespread interest has developed, and in many communities a sound program for such instruction has been established. It is likely that, when other State boards of health and other communities perceive the success which attends the development of such a plan, the introduction of sex education in schools will be facilitated.

The service representative also gave lectures in the Georgia State schools for the instruction of colored midwives. It is expected that this group will help to spread information regarding venereal diseases not only to expectant mothers but to others and that they will become valuable aids in preventive work.

In the District of Columbia, a representative of the Public Health Service has worked in cooperation with the District health department which has the very active support of the District Social Hygiene Society. A tentative plan has been arranged with the school authorities whereby sex education will be given in high schools in connection with the subject of general science. The plan will first go into effect at but one school and gradually as teachers become trained in the methods it will be extended so as to include all the high schools in the District under the board of education. The attitude of the school authorities in the District and in a number of the States clearly indicates their belief in the practical value of this undertaking.

The service detailed a representative to the State Board of Health of Missouri to cooperate in the formulation and adaptation of a program of municipal control of the venereal diseases. Work in this State was carried on primarily by securing the cooperation of physicians and by interesting municipal authorities in establishing venereal disease clinics where indigent patients could be treated. Impetus was given other official measures for the elimination of venereal diseases. This work resulted in the establishment of many venereal disease clinics and served to arouse the interest and cooperation of the nonmedical authorities in the control of venereal diseases.

Special work with the negro population was carried on in only one State—Missouri. In 13 cities a representative of the division lectured to groups of men, and women, and school children, to the number of 20,706. One hundred and thirty-eight lectures were given; 43 film showings were held. In making arrangements for these lectures, 180 interviews were necessary.

Similar cooperative work was carried on among the negro population in the State of Alabama.

The plan of work in Kentucky comprises, in addition to promoting community interest, the appointment of many consulting physicians throughout the State to provide, in cooperation with the State board of health, treatment for indigent persons. These cooperating physicians are located in communities where the maintenance of a clinic will not be practicable. They will also assist the State board of health in disseminating information regarding the venereal diseases.

A special feature of the cooperative work in the State of Washington was the interest of the health and sanitation committee of the Spokane Chamber of Commerce, which sponsored a three weeks' educational campaign for the purpose of arousing community interest. A number of addresses were made to parents and teachers and a course of lectures on sex education given at Washington State College at Pullman. Other groups addressed were scout masters, employed girls, council of Camp Fire Girls, and civic organizations. The Spokane daily papers published a series of articles dealing with the venereal disease problem.

In the State of Pennsylvania, the cooperative work was done principally among women and girls over 14 years of age. Ninety such groups aggregated 12,279 persons. These groups comprised club women having particular interest in community betterment, and they also included colored midwives who doubtless will prove of unusual assistance in the dissemination of information relating to the relief and prevention of venereal diseases. An observation of interest was that modest announcements of meetings brought better results than spectacular advertising.

Pamphlets, Film Showings, Lectures, Exhibits

There has been a steady demand throughout the year for information and popular instruction. Requests for pamphlets received by the division and State boards of health totaled 41,663. The number of pamphlets distributed was 1,000,360.

State boards of health report the purchase of 784,560 pamphlets and placards.

Table 8 indicates the number of pamphlets purchased by States.

State boards of health borrowed or purchased 62 exhibits, 36 sets of slides, and 19 films. Table 9 lists these purchases by States.

The American Social Hygiene Association reports the sale of 273 exhibits, 9 sets of slides, 26,142 pamphlets to State boards of health and others.

A statistical report of the educational activities of the State boards of health is shown in Table 10.

Federal and State Appropriations

For the fiscal year 1925, Congress made an appropriation of $149,000 to the Division of Venereal Diseases, of which sum $25,000 was allotted to State boards of health for cooperative work in the prevention and control of venereal diseases. Forty-five States received their allotments by complying with the regulations promulgated by the Secretary of the Treasury. The States, through legislative action or from other sources, had more than $680,000 in addition to the Federal allotment for use in controlling venereal diseases in 1925. Table 1 gives the amount of the State appropriations and Federal allotments.

For the fiscal year 1926, an appropriation of $75,000 was made by Congress for the maintenance and expenses of the division of venereal diseases. The item of Federal allotments to States was not included in the appropriation for the year 1926.

Reporting of Venereal Diseases

The State boards of health recording cases of venereal diseases from all sources—clinics, penal, and correctional institutions, and physicians in private practice—reported a total of 372,813 cases of venereal diseases in 1925, as shown in Table 2, an increase of 7,717 cases, or 2.11 per cent, over the number reported in 1924. The accompanying diagram indicates the progress in venereal disease reporting since 1919.

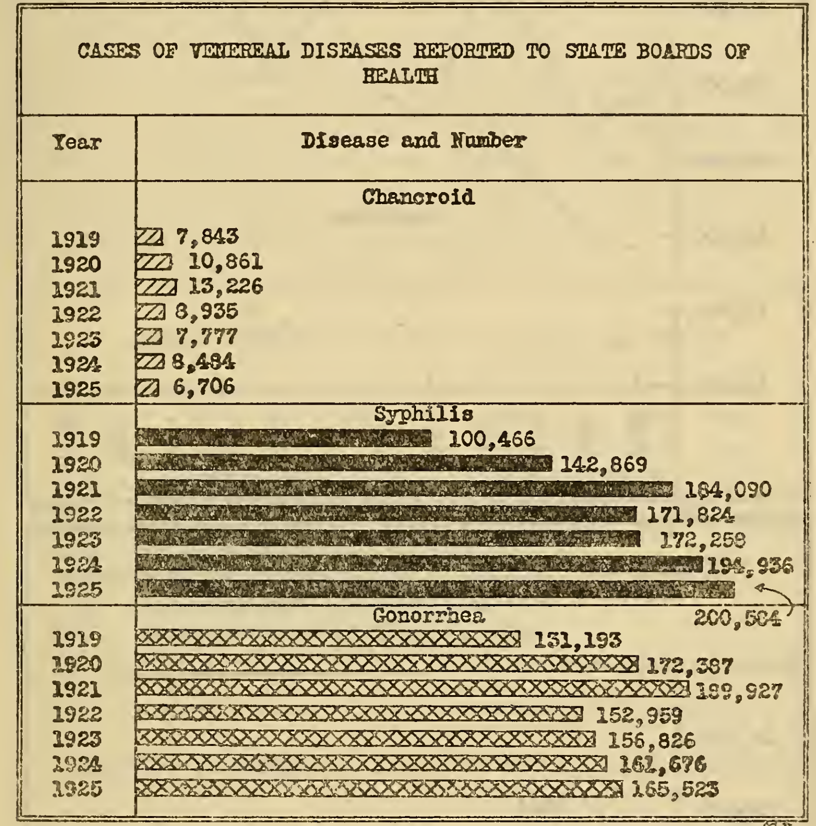
It is of interest to note that, while the rate for chancroid is comparatively uniform, the reported incidence of syphilis is double that of the year 1919. The reports of gonorrhea have been increasing at a uniform rate since 1922.

The increase in cases reported to State boards of health is apparently attributable to improved diagnostic facilities and the recognition of latent syphilis as the cause of many obscure disabilities. The number of new admissions to clinics for the year was less than in the preceding year. Table 3 shows the States ranked according to the percentage of increase or decrease in the number of venereal disease cases reported to State boards of health.

Of the 42 States for which statistics are given, 19 report a decrease in reporting, while 23 report an increase. It is difficult to account for the wide variations among the States. It is known that in some of the States showing a large increase this increase is due to special work undertaken by the State board of health to secure the interest and enlist the cooperation of physicians. The increase in some

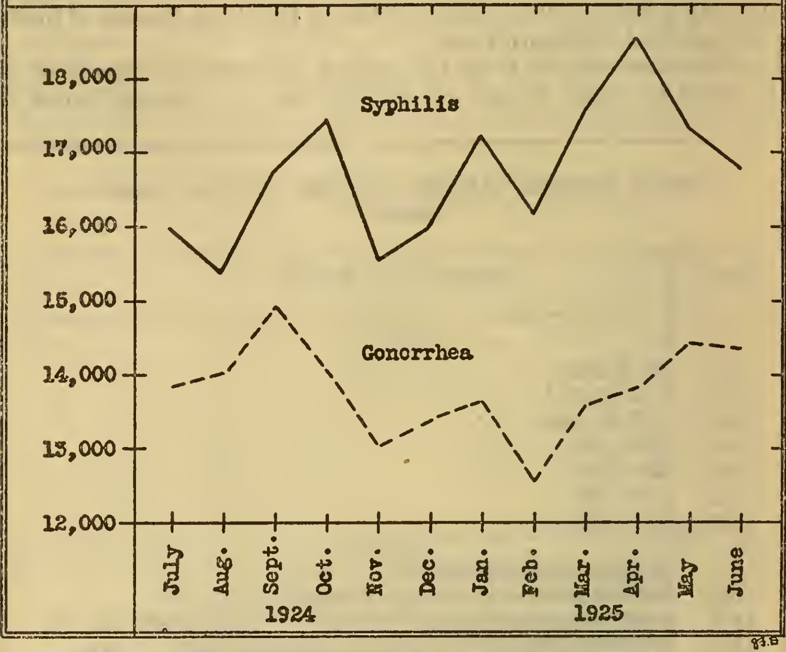
States is also due to simplified reporting methods. In many of the States showing a decrease in reporting, this decrease occurs concurrently with a falling off in the activities of the State boards of health, due to curtailed appropriations.

The statistics secured from the reports of venereal diseases by the State board of health should not be regarded as a true picture of the prevalence of the diseases. It is recognized that the number of cases reported represents but a fractional part of the total incidence. Consequently, variations from year to year in case reports should be regarded as an index of progress in the detection of obscure cases and in the reporting of the diseases.

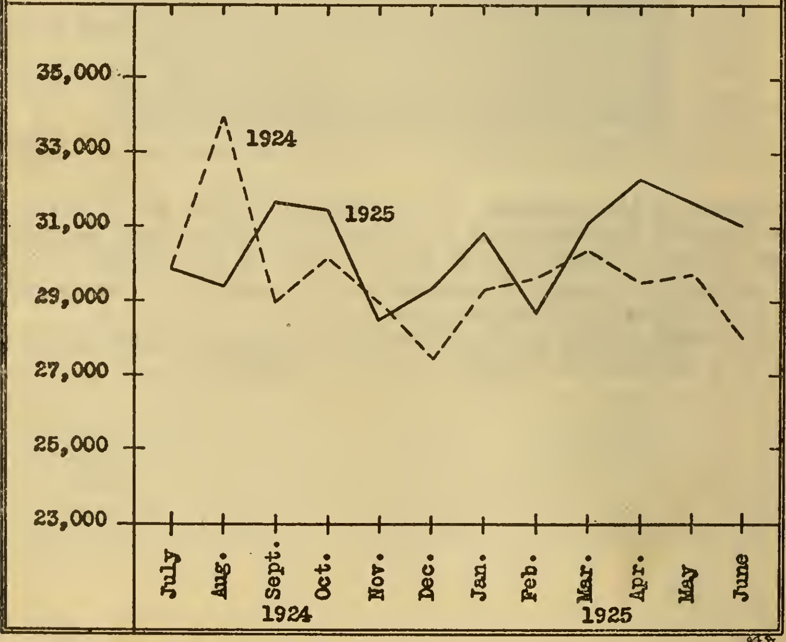


The accompanying graphs indicate the monthly variation in the cases of gonorrhea and syphilis reported in 1924–25.

CASES OF SYPHILIS AND GONORRHEA REPORTED TO STATE BOARDS OF HEALTH, BY MONTHS



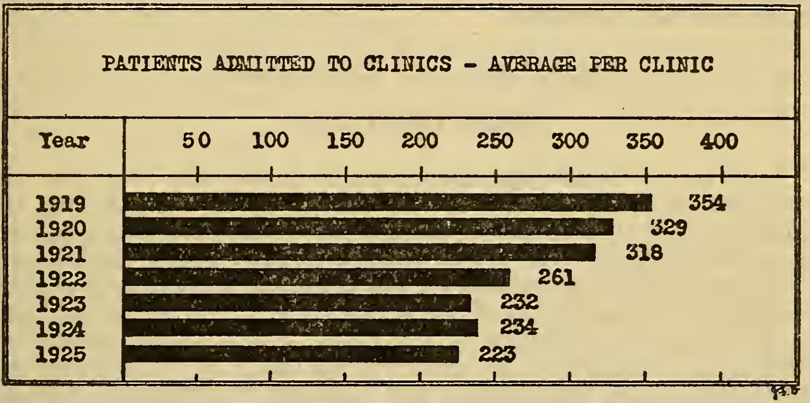
SYPHILIS AND GONORRHEA - TOTAL CASES REPORTED TO STATE BOARDS OF HEALTH, BY MONTHS AND YEARS

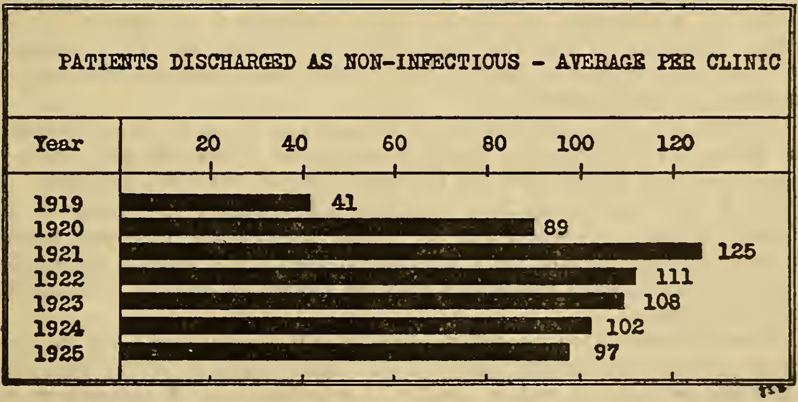


CLINICS

While there has been no increase in the number of clinics operating, nor in the number of new admissions to clinics, more persons have been kept under treatment during the past year than during the previous year. More examinations and treatments per person admitted were given. The number of doses of arsphenamin administered and of microscopic examinations for gonococci were greater than the number for 1924.

Four hundred and ninety-five clinics reported to the State boards of health. New cases admitted to these clinics totaled 110,372, an average of 223 to each clinic. The number of cases of syphilis reported was 62,543; gonorrhea, 45,079; and chancroid, 2,750. Number of treatments given was 2,088,494; doses of arsphenamin administered, 521,993; Wassermann tests, 300,362; and the number of examinations made for gonococcus infection was 203,512. A complete report of the clinics is presented in Table 4.





States ranked according to the monthly and daily average of admissions to the clinic are shown in Table 5.

Correctional and Penal Institutions

Reports from 39 correctional and penal institutions have been received by the division. The efforts of those in charge of these institutions have resulted in a large increase in the number of venereally diseased persons discovered and treated. Eight thousand one hundred and eight new patients were admitted to treatment in 1925, an increase of 15.1 per cent over 1924. The work of these institutions is shown in Table 6.

Distribution of Arsphenamin

The State boards of health report the administration of 683,591 doses of arsphenamin or similar product for the past year, an increase of 79,463 doses, or 13.1 per cent, over 1924. Table 7 gives the amounts distributed by each State board of health. Of the total amount 76.4 per cent was administered by the clinics and 23.6 per cent by physicians for the treatment of indigent patients to whom clinic service was not accessible.

State Laws and Regulations

STATE LEGISLATION

The principal legislative development during the year was the enactment by Congress of a law (Public, No. 494) empowering the health officer of the District of Columbia to make and issue rules and regulations for the control of the venereal diseases within the District. In both purpose and substance the law is similar to those laws already enacted by the legislatures of the several States. With the addition of the District of Columbia to the ranks, every health jurisdiction within the United States has enacted legislation or issued rules and regulations having the force of law touching the control of the venereal diseases. The principal features of these laws are the requiring of physicians to report cases diagnosed or treated to the health department, and the empowering of health officers to investigate sources of infection and to isolate and treat persons who may be a menace to the public health.

The venereal disease control law already in force in Massachusetts was amended to give the State department of health authority to make rules and regulations for the reporting of venereal diseases. In Maine, a supplementary law was enacted whereby the name of any person leaving a correctional or penal institution infected with a venereal disease should be reported to the State health authorities so that the necessary measures may be taken to protect others from such infections.

Massachusetts also recently enacted an amendment to its contagious disease law which removes any legal doubt as to the authority of the department of public health to provide special regulations for the control of gonorrhea and syphilis. Under this legislative authority, the department is considering new regulations which will provide that these diseases shall be reported in the first instance directly to local boards of health, instead of to the State health department.

West Virginia, during its recent legislative session, enacted a comprehensive injunction and abatement law directed against prostitution. In theory the law is similar to laws which are in force in other States and which have proved extremely valuable in repressing prostitution from the commercial aspect. These laws rely upon the doctrine that if there is no adequate remedy at law for the alleviation of an acknowledged and persisting evil, then the extraordinary powers of the equity courts may be invoked.

An injunction and abatement bill, which for some time had been before the legislature of Rhode Island, was passed without debate on the last day of the session and was officially signed by the governor.

Another State, Louisiana, has undertaken to make freedom from venereal disease a legal precedent to marriage by enacting that all applicants for license to marry must present a certificate of freedom from venereal infection. There are now 13 States attempting to regulate marriage so as to prohibit venereally infected persons from entering into the marital relation.

Missouri, in its recent session of the legislature, passed an amendment to its red-light injunction and abatement act which provides that the order of injunction closing disorderly houses shall remain in force for a period of not longer than one year.

COURT DECISIONS

Decisions by courts of last resort touching the validity or constitutionality of venereal disease control measures are becoming rather rare, for the reason that, in every instance where the law has been challenged, the decision has been favorable to the health authorities. During the year an effort was made to invalidate the Michigan law (People *v.* Wohlford, 179 NW. 558) as it related to reporting by invoking a technical objection, but the supreme court of that State held that the provision in the law was amply comprehended by the title and thus the objection was without merit. A test case in Mississippi (Jackson *v.* Mitchell, 100 So. 513) resulted in a ruling defining the procedure which a health officer must pursue in the enforcement of quarantine measures against persons suspected of being infected with a venereal disease. An attempt in this case was made to have the section of the law concerned declared unconstitutional, but the court disposed of the case without passing upon the constitutional question raised. A recent decision by the court of common pleas of Berks County, Pa., affirmed the constitutionality of the regulations of the State department of health providing for the quarantine of venereally infected persons considered by the proper health authorities to be a menace to the health of a community.

TABLE 1.—*Federal allotments and State appropriations for venereal disease prevention work for the fiscal year 1925*

State	State appropriation	Federal allotment	Total amount available
United States	$681, 371. 84	$25, 000. 00	$706, 371. 84
Alabama	25, 000. 00	555. 33	25, 555. 33
Arizona	79. 03	79. 03	158. 06
Arkansas	12, 500. 00	414. 39	12, 914. 39
California	3, 180. 00	810. 43	3, 990. 43
Colorado	20, 000. 00	222. 22	20, 222. 22
Connecticut	10, 000. 00	326. 51	10, 326. 51
Delaware	2, 000. 00	52. 74	2, 052. 74
District of Columbia	------------	103. 48	103. 48
Florida	229. 04	229. 04	458. 08
Georgia	10, 000. 00	684. 85	10, 684. 85
Idaho	(1)	102. 13	(1)
Illinois	85, 950. 00	1, 533. 73	87, 483. 73
Indiana	30, 000. 00	693. 02	30, 693. 02
Iowa	25, 000. 00	568. 54	25, 568. 54
Kansas	3, 000. 00	418. 42	3, 418. 42
Kentucky	15, 000. 00	571. 52	15, 571. 52
Louisiana	------------	425. 34	425. 34
Maine	14, 000. 00	181. 63	14, 181. 63
Maryland	24, 943. 35	342. 84	25, 286. 19
Massachusetts	31, 900. 00	911. 06	32, 811. 06
Michigan	25, 000. 00	867. 56	25, 867. 56
Minnesota	(1)	564. 54	(1)
Mississippi	10, 000. 00	423. 47	10, 423. 47
Missouri	(1)	805. 04	(1)
Montana	945. 81	129. 81	1, 075. 62
Nebraska	6, 800. 00	306. 58	7, 106. 58
Nevada	18. 30	18. 30	36. 60
New Hampshire	6, 000. 00	104. 79	6, 104. 79
New Jersey	25, 000. 00	746. 35	25, 746. 35
New Mexico	85. 22	85. 22	170. 44
New York	140, 000. 00	2, 456. 05	142, 456. 05
North Carolina	(1)	605. 22	(1)
North Dakota	6, 274. 24	152. 98	6, 427. 22
Ohio	25, 000. 00	1, 362. 07	26, 362. 07
Oklahoma	20, 000. 00	479. 68	20, 479. 68
Oregon	3, 000. 00	185. 27	3, 185. 27
Pennsylvania	40, 000. 00	2, 062. 24	42, 062. 24
Rhode Island	(1)	142. 94	(1)
South Carolina	(1)	398. 19	(1)
South Dakota	1, 650. 54	150. 54	1, 801. 08
Tennessee	(1)	552. 90	(1)
Texas	4, 417. 00	1, 102. 83	5, 519. 83
Utah	(1)	106. 28	(1)
Vermont	4, 000. 00	83. 35	4, 083. 35
Virginia	2, 200. 00	546. 11	2, 746. 11
Washington	1, 283. 33	320. 83	1, 604. 16
West Virginia	10, 500. 00	346. 16	10, 846. 16
Wisconsin	36, 370. 00	622. 47	36, 992. 47
Wyoming	45. 98	45. 98	45. 98

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[1] Indicates amount of State appropriation unknown.

TABULAR SUMMARY

TABLE 2.—*Cases of venereal disease reported to State boards of health July 1, 1924, to June 30, 1925*

State	Total	Syphilis	Gonorrhea	Chancroid
United States	372, 813	200, 584	165, 523	6, 706
Alabama	12, 873	7, 916	4, 636	321
Arizona	337	183	146	8
Arkansas	4, 846	3, 142	1, 645	59
California [1]	17, 916	9, 856	7, 800	260
Colorado	2, 186	736	1, 389	61
Connecticut	2, 529	1, 370	1, 159	------
Delaware	571	164	345	62
District of Columbia [2]	------	------	------	------
Florida	7, 025	4, 693	2, 113	219
Georgia	11, 595	6, 018	5, 158	419
Idaho	257	78	176	3
Illinois	31, 254	10, 981	19, 714	559
Indiana	4, 743	2, 117	2, 512	114
Iowa [3]	2, 028	1, 074	948	6
Kansas	1, 915	665	1, 236	14
Kentucky	44, 245	29, 817	14, 141	287
Louisiana	7, 420	3, 862	3, 107	451
Maine	1, 137	460	661	16
Maryland	5, 664	2, 810	2, 545	309
Massachusetts	10, 581	3, 921	6, 660	------
Michigan	24, 842	14, 150	10, 558	134
Minnesota	10, 149	4, 898	5, 193	58
Mississippi	27, 015	11, 040	15, 915	60
Missouri	8, 621	3, 673	4, 034	914
Montana [1]	441	251	188	2
Nebraska	3, 305	1, 024	2, 196	85
Nevada [2]	------	------	------	------
New Hampshire [1]	399	158	239	2
New Jersey	7, 291	4, 139	3, 089	63
New Mexico	445	121	316	8
New York	37, 946	27, 388	10, 494	64
North Carolina	5, 890	3, 215	2, 507	168
North Dakota	1, 011	229	782	------
Ohio	9, 887	5, 264	4, 426	197
Oklahoma [4]	1, 926	1, 223	691	12
Oregon	1, 924	679	1, 233	12
Pennsylvania	5, 079	2, 681	2, 299	99
Rhode Island	1, 092	453	637	2
South Carolina	7, 499	3, 850	3, 507	142
South Dakota	772	121	643	8
Tennessee	6, 387	3, 669	2, 272	446
Texas	23, 881	12, 920	10, 185	776
Utah	375	182	184	9
Vermont	612	256	356	------
Virginia	3, 349	2, 138	1, 134	77
Washington	1, 699	787	883	29
West Virginia	8, 226	5, 385	2, 730	111
Wisconsin	3, 481	742	2, 682	57
Wyoming [1]	147	85	59	3

[1] For 11 months only. [2] Not reporting. [3] For 7 months only. [4] For 6 months only.

TABLE 3.—*States ranked according to the percentage of increase or decrease in the number of cases of venereal disease reported to State boards of health, 1925 over 1924*

STATES SHOWING INCREASE

Rank	State	Per cent	Rank	State	Per cent
1	South Carolina	84.11	13	Michigan	10.90
2	West Virginia	42.94	14	Alabama	10.11
3	Florida	36.28	15	Arkansas	7.98
4	Mississippi	33.67	16	Illinois	7.61
5	Connecticut	27.53	17	Washington	4.36
6	Kentucky	19.11	18	Vermont	2.34
7	New Jersey	18.50	19	Maine	2.16
8	Wisconsin	18.43	20	Maryland	2.13
9	Georgia	16.07	21	Texas	1.81
10	New Mexico	14.40	22	Rhode Island	1.49
11	Indiana	11.63	23	Tennessee	1.45
12	North Dakota	11.22			

STATES SHOWING DECREASE

24	Pennsylvania	1.28	34	Minnesota	13.32
25	South Dakota	1.91	35	Nebraska	16.10
26	New York	1.98	36	Colorado	16.41
27	Missouri	3.37	37	Delaware	19.58
28	North Carolina	3.90	38	Oregon	26.73
29	Virginia	6.14	39	Montana (incomplete)	[1] 26.74
30	Arizona	7.92	40	California (incomplete)	[1] 28.62
31	Ohio	8.16	41	Kansas	31.53
32	Louisiana	9.11	42	Idaho	32.37
33	New Hampshire (incomplete)	[1] 9.73			

[1] 1925 figures are for 11 months only.

NOTE.—Owing to a change in the method of reporting in Massachusetts in 1925, and incomplete returns from Iowa, Oklahoma, Utah, and Wyoming in 1924 or 1925, the figures for these States are not comparable and have been omitted from the above table. The District of Columbia did not report in 1925 and also has been omitted.

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
United States	4,961	110,372	62,543	45,079	2,750	47,828	2,088,494	521,993	300,362	203,512
Alabama	165	8,726	6,161	2,359	206	4,918	115,733	44,818	14,652	2,782
Albany	12	251	209	42	--------	22	3,765	1,712	1,702	333
Anniston	10	111	97	14	--------	41	1,312	595	231	38
Bessemer	12	244	205	39	--------	269	3,149	1,201	321	85
Birmingham (2)	24	2,734	2,212	519	3	1,242	30,983	13,325	6,436	581
Eufaula	7	128	50	55	23	141	1,521	452	--------	--------
Gadsden	12	80	39	37	4	64	1,710	307	106	26
Huntsville	12	212	84	119	9	512	5,476	1,233	889	483
Mobile	12	1,105	806	291	8	482	28,063	11,084	1,329	121
Montgomery	12	429	338	86	5	--------	5,105	1,567	289	--------
Riderwood	10	145	83	57	5	110	675	386	12	--------
Selma	12	161	146	15	--------	56	2,751	774	387	--------
Talladega	6	49	32	15	2	12	763	382	139	31
Tuscaloosa	12	358	267	90	1	261	6,339	1,804	431	157
Cooperative	12	2,719	1,593	980	146	1,706	24,121	9,996	2,380	927
Arkansas	80	3,666	2,642	985	39	2,650	60,316	15,915	9,450	2,364
Fort Smith	12	32	29	3	--------	5	362	268	85	--------
Hot Springs (2)	23	2,568	1,914	649	5	2,264	53,022	13,216	5,255	1,445
Little Rock	12	656	536	120	--------	9	4,866	1,569	3,745	554
North Little Rock	5	9	9	--------	--------	2	38	22	11	4
Pine Bluff	12	24	22	2	--------	8	396	270	25	6
Texarkana	12	315	93	190	32	334	1,080	443	285	331
West Helena	4	62	39	21	2	28	552	127	44	24

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
California	126	6,949	3,963	2,920	66	1,049	109,922	39,866	20,500	6,963
Fresno	11	213	138	75	-------	87	2,953	581	838	578
Los Angeles (3)	33	3,091	1,781	1,299	11	268	40,523	13,833	5,979	1,863
Oakland	11	589	304	285	-------	31	8,317	2,892	2,618	365
San Diego	11	270	145	125	-------	164	4,359	2,869	787	451
San Francisco (4)	38	2,293	1,332	924	37	320	45,050	17,850	9,179	3,625
San Jose	11	63	41	22	-------	13	726	533	338	62
Stockton	11	430	222	190	18	166	7,994	1,308	761	19
Colorado	97	1,079	483	574	22	611	19,390	3,503	1,700	1,495
Buena Vista	10	11	-------	11	-------	9	222	72	13	5
Colorado Springs	12	22	18	4	-------	25	488	175	122	9
Denver (2)	24	680	346	328	6	366	10,110	1,921	1,072	955
Fort Collins	12	114	18	95	1	103	4,148	293	82	229
Greeley	7	15	7	7	1	5	100	45	10	13
Leadville	10	21	1	20	-------	33	725	-------	9	98
Pueblo	12	177	74	89	14	63	3,349	843	334	147
Trinidad	10	39	19	20	-------	7	248	154	58	39
Connecticut	72	885	403	460	22	465	16,626	4,431	1,789	1,728
Bridgeport	12	137	86	51	-------	31	4,586	805	336	156
Hartford	12	264	84	175	5	128	4,587	1,269	212	464
New Haven	12	164	98	66	-------	68	5,143	1,740	710	170
New London	12	22	19	3	-------	30	658	99	69	51
Stamford	12	251	90	145	16	196	976	293	427	847
Waterbury	12	47	26	20	1	12	676	225	35	40
Delaware	28	283	154	113	16	123	2,828	1,077	219	162
Dover	12	95	24	56	15	110	1,254	414	89	127
Wilmington (2)	16	188	130	57	1	13	1,574	663	130	35
Florida	99	1,485	937	452	96	812	12,476	5,123	2,655	671
Alton	12	204	130	74	-------	210	732	431	-------	78
Arcadia	9	66	29	24	13	79	949	223	110	100
Fort Myers	4	68	11	57	-------	30	155	25	3	88
Fort Pierce	11	84	32	34	18	63	651	164	51	10
Jacksonville	12	242	213	27	2	118	3,090	1,167	963	100
Miami	11	382	238	117	27	88	2,507	1,660	489	49
Millville	10	19	4	12	3	31	158	96	19	12
Ocala	10	3	2	-------	1	3	41	34	2	11
Perry	8	142	59	51	32	75	819	56	2	-------
Tampa	12	275	219	56	-------	115	3,374	1,267	1,016	223
Georgia	72	3,194	2,586	509	99	428	37,978	14,593	10,369	1,000
Atlanta	12	1,232	1,193	39	-------	1	8,705	4,707	5,761	91
Augusta	12	242	104	126	12	-------	12,652	1,628	1,640	310
Brunswick	12	37	36	1	-------	24	476	193	216	163
Columbus	12	261	154	99	8	23	2,477	1,239	217	13
Macon	12	758	495	189	74	79	9,125	2,900	879	381
Savannah	12	664	604	55	5	301	4,543	3,926	1,656	42
Illinois	281	9,294	3,837	5,237	220	2,508	367,825	39,847	27,838	38,865
Alton	12	116	46	68	2	80	2,825	467	149	140
Cairo	12	111	90	21	-------	127	1,639	937	271	12
Carlinville	12	103	40	59	4	72	1,471	222	84	172
Chicago (11)	104	7,296	2,808	4,316	172	1,242	327,606	26,487	25,030	35,062
Decatur	12	167	97	70	-------	-------	3,376	910	261	796
East St. Louis	12	281	100	160	21	171	5,213	413	210	674
Herrin	3	73	61	12	-------	-------	380	340	33	20
Litchfield	12	32	4	27	1	22	1,999	175	75	243
Moline	12	100	47	52	1	75	2,227	1,341	159	69
Peoria	12	197	136	59	2	153	1,968	1,031	590	688
Princeton	12	18	7	11	-------	9	137	42	24	38
Quincy	10	75	31	40	4	68	1,909	273	112	197
Robinson	11	12	2	10	-------	-------	71	10	3	12
Rockford	12	69	25	43	1	47	1,596	505	177	113

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Illinois—Contd.										
Rock Island	9	122	51	71	------	71	2,958	1,726	177	194
Springfield	12	492	282	204	6	335	8,671	4,666	458	434
West Hammond	12	30	10	14	6	36	3,779	302	25	1
Indiana	204	3,305	1,580	1,631	94	765	119,337	18,694	7,465	1,989
Anderson	12	156	65	91	------	50	5,521	844	411	137
Columbus	12	36	21	15	------	16	962	160	28	46
Elwood	12	46	24	22	------	11	1,078	200	59	16
Evansville	12	562	227	331	4	120	13,137	2,955	918	157
Fort Wayne	12	179	82	96	1	75	2,960	589	330	386
Hammond	12	183	90	67	26	111	7,328	753	269	11
Indianapolis (2)	24	1,084	508	529	47	32	65,166	2,462	2,616	464
Kokomo	12	65	31	34	------	8	839	569	65	38
Madison	12	56	10	38	8	41	896	73	20	17
Marion	12	24	17	7	------	11	1,659	1,412	31	------
Michigan City	12	24	9	12	3	17	284	68	52	104
Muncie	12	82	45	37	------	4	1,410	697	102	39
New Castle	12	37	20	17	------	6	575	13	160	6
Richmond	12	64	50	14	------	17	1,148	454	169	56
South Bend	12	315	188	124	3	39	7,787	4,440	1,279	295
Terre Haute	12	392	193	197	2	207	8,587	3,005	1,015	217
Iowa	52	816	489	327	------	224	15,485	5,604	1,776	1,270
Cedar Rapids	2	10	10	------	------	------	95	51	21	6
Clinton	4	24	9	15	------	13	237	97	28	5
Davenport	5	79	57	22	------	4	1,140	648	338	59
Des Moines	7	486	281	205	------	6	11,767	3,627	865	826
Dubuque	6	21	14	7	------	31	206	108	64	17
Fort Dodge	6	14	5	9	------	3	83	37	9	6
Marshalltown	4	------	------	------	------	------	63	12	9	12
Ottumwa	7	51	42	9	------	66	458	367	90	20
Sioux City (2)	11	131	71	60	------	101	1,436	657	352	319
Kansas	72	586	389	195	2	281	12,066	3,783	1,883	926
Junction City	11	------	------	------	------	------	------	------	10	83
Kansas City (3)	22	168	130	37	1	23	1,677	611	301	28
Lawrence	3	1	1	------	------	------	30	------	13	3
Topeka	12	92	65	26	1	26	2,984	1,129	364	170
Wichita (2)	24	325	193	132	------	232	7,375	2,043	1,195	642
Kentucky	164	5,456	2,548	2,821	87	2,814	57,052	17,387	6,100	3,167
Ashland	12	233	145	88	------	------	5,102	2,932	341	992
Covington	12	165	81	84	------	218	2,589	322	177	------
Frankfort	12	1,405	682	721	2	1,397	7,256	4,577	1,499	------
Fulton and Hickman	10	53	38	15	------	41	474	394	77	26
Georgetown	12	39	23	16	------	51	666	299	136	28
Henderson	9	38	38	------	------	3	724	266	156	2
Lexington	11	672	406	260	6	752	10,347	2,578	1,684	828
Louisville	12	2,304	844	1,397	63	36	20,960	3,552	1,032	652
Maysville	10	10	4	6	------	21	201	13	10	1
Mount Sterling	11	24	19	5	------	30	148	72	36	7
Newport	11	147	55	83	9	107	3,968	485	383	475
Owensboro	10	58	54	3	1	52	560	414	166	41
Paducah	11	213	94	118	1	78	2,120	924	229	16
Paintsville	8	31	19	7	5	12	295	186	27	21
Somerset	1	1	1	------	------	------	23	23	20	7
Winchester	12	63	45	18	------	16	1,619	350	127	71
Louisiana	48	3,482	2,120	1,260	102	2,342	28,193	13,055	4,154	2,059
Alexandria	1	186	96	75	15	84	1,246	154	68	115
Monroe	12	589	553	36	------	247	5,050	4,761	869	52
New Orleans (2)	14	1,176	624	503	49	312	12,839	4,448	1,449	520
Shreveport (2)	21	1,531	847	646	38	1,699	9,058	3,692	1,768	1,372

Table 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Maine	50	375	237	122	16	226	5, 845	2, 797	947	463
Bangor	6	101	59	39	3	53	966	329	84	55
Bath	12	8	6	2	--------	--------	343	54	121	113
Calais	11	30	16	14	--------	34	1, 296	488	115	20
Portland (2)	21	236	156	67	13	139	3, 240	1, 926	627	275
Maryland	147	2, 357	1, 010	1, 193	154	1, 323	48, 811	13, 742	3, 646	3, 595
Annapolis	12	180	45	132	3	173	2, 048	529	103	133
Baltimore (4)	48	1, 585	679	757	149	842	30, 466	9, 259	2, 346	1, 507
Cambridge	6	21	11	10	--------	3	124	88	35	13
Crisfield	12	67	18	49	--------	64	721	296	70	170
Cumberland	12	218	88	129	1	128	11, 916	1, 275	369	863
Easton	10	29	28	1	--------	24	875	838	184	2
Ellicott City	3	23	23	--------	--------	--------	148	125	86	--------
Hagerstown	12	136	57	79	--------	39	1, 772	843	291	886
Hughesville	8	26	--------	26	--------	34	250	31	34	--------
Prince Frederick	4	7	--------	7	--------	2	16	--------	--------	--------
Rockville	8	20	20	--------	--------	7	136	127	4	--------
Salisbury	12	45	41	3	1	7	339	331	124	21
Massachusetts[1]	216	3, 013	1, 557	1, 455	1	812	81, 174	23, 722	12, 308	10, 633
Attleboro	6	17	7	10	--------	--------	173	106	21	3
Boston (8)	44	1, 971	945	1, 026	--------	384	50, 463	15, 389	6, 698	9, 288
Brockton	6	18	11	7	--------	6	582	278	94	2
Cambridge	5	14	8	6	--------	--------	57	30	16	--------
Canton	6	5	3	2	--------	11	2, 287	14	11	135
Fall River (2)	9	61	17	44	--------	7	3, 300	260	109	189
Fitchburg	6	26	6	20	--------	14	354	91	43	11
Hathorne	6	37	37	--------	--------	--------	1, 587	815	529	7
Haverhill	6	22	11	10	1	18	776	159	36	9
Holyoke	6	17	9	8	--------	17	524	206	40	3
Lawrence	6	61	25	36	--------	5	1, 069	329	98	20
Lowell	6	98	47	51	--------	66	1, 937	391	274	209
Lynn	6	21	13	8	--------	9	939	219	132	11
Medfield	6	3	3	--------	--------	9	69	59	64	1
Monson	6	2	2	--------	--------	1	54	54	86	--------
New Bedford	6	149	92	57	--------	125	4, 239	1, 032	157	51
Northampton	6	14	14	--------	--------	1	213	213	681	--------
North Grafton	5	1	1	--------	--------	--------	57	--------	--------	--------
Pittsfield	6	7	5	2	--------	6	110	36	12	24
Pocasset	6	6	6	--------	--------	5	31	--------	25	--------
Quincy	6	3	2	1	--------	3	112	56	14	4
Rutland	6	3	3	--------	--------	4	1	--------	213	--------
Salem	6	54	38	16	--------	13	798	544	156	46
Springfield	6	76	39	37	--------	11	2, 167	770	150	25
Taunton	6	26	26	--------	--------	15	725	506	375	--------
Tewksbury	6	163	106	57	--------	59	5, 828	588	1, 440	278
Westborough	5	18	18	--------	--------	7	367	367	238	101
Worcester (3)	16	120	63	57	--------	16	2, 355	1, 210	596	216
Michigan	191	7, 292	3, 897	3, 369	26	1, 538	136, 370	25, 492	30, 146	28, 168
Battle Creek	12	109	66	43	--------	93	1, 890	848	321	158
Detroit (5)	52	5, 928	3, 143	2, 779	6	705	106, 968	17, 247	24, 303	25, 445
Escanaba	11	75	10	65	--------	74	3, 171	654	43	20
Flint	12	299	169	130	--------	138	10, 606	3, 523	1, 855	717
Grand Rapids (2)	23	204	105	96	3	216	3, 202	742	565	370
Highland Park	3	--------	--------	--------	--------	2	20	19	16	14
Jackson	12	135	110	19	6	38	3, 116	1, 465	1, 568	170
Kalamazoo	12	57	30	23	4	40	1, 731	293	164	196
Lansing	12	158	109	48	1	95	1, 130	795	761	152
Muskegon	12	76	14	60	2	78	2, 255	209	101	264
Pontiac (2)	13	183	87	92	4	18	980	368	265	504
Port Huron	5	8	7	1	--------	9	94	30	3	--------
Saginaw	12	60	47	13	--------	32	1, 207	299	181	158
Minnesota	48	912	387	523	2	543	28, 051	7, 074	2, 553	1, 478
Duluth	12	495	167	326	2	92	11, 345	1, 919	689	802
Minneapolis (2)	24	298	148	150	--------	113	8, 531	2, 282	662	202
St. Paul	12	119	72	47	--------	338	8, 175	2, 873	1, 202	474

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[1] For six months only; State board of health discontinued sending clinic reports after December, 1924.

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Mississippi	24	336	230	88	18	132	2,912	1,690	172	387
Laurel	12	189	144	36	9	42	862	801	21	3
Meridian	12	147	86	52	9	90	2,050	889	151	384
Missouri	149	2,702	1,749	934	19	677	49,188	8,417	5,904	3,532
Columbia	12	16	10	6	-------	2	207	90	34	23
Flat River	2	6	6	-------	-------	-------	49	48	13	1
Hannibal	12	23	-------	17	6	14	249	19	9	3
Joplin	8	93	51	40	2	86	1,238	526	252	202
Kansas City (7)	52	1,523	992	531	-------	116	21,691	4,950	3,682	1,398
Sedalia	10	155	35	110	10	169	1,466	143	142	175
Springfield (2)	14	196	107	88	1	116	2,795	660	171	102
St. Joseph	10	251	119	132	-------	7	3,035	934	255	109
St. Louis (4)	29	439	429	10	-------	167	18,458	1,047	1,346	1,519
Montana	15	29	7	19	3	25	152	35	26	51
Billings	5	14	2	11	1	16	78	12	7	21
Great Falls	10	15	5	8	2	9	74	23	19	30
Nebraska	52	1,129	605	486	38	360	34,040	7,719	4,246	4,82
Hastings	12	18	3	15	-------	13	736	50	21	313
Lincoln	12	330	141	184	5	129	13,617	3,814	1,315	2,954
Omaha (2)	24	778	459	286	33	217	19,415	3,741	2,900	1,551
Winnebago	4	3	2	1	-------	1	272	114	10	5
New Hampshire	40	139	60	78	1	24	7,160	1,677	425	265
Concord	11	27	19	8	-------	1	568	552	39	20
Dover	7	4	2	2	-------	-------	57	24	5	3
Manchester	11	95	33	61	1	20	5,528	814	184	200
Nashua	11	13	6	7	-------	3	1,007	287	197	42
New Jersey	220	1,973	1,194	770	9	985	50,606	13,156	6,065	3,453
Atlantic City	7	117	60	57	-------	169	2,545	1,714	360	486
Bayonne	12	34	28	5	1	24	609	388	125	35
Camden	11	46	46	-------	-------	1	494	171	35	-------
Englewood	11	17	17	-------	-------	5	284	272	59	-------
Greystone Park	12	46	36	8	2	36	923	787	191	25
Jersey City	12	64	38	26	-------	2	1,711	741	104	65
Long Branch	12	62	55	7	-------	23	802	287	299	38
Montclair	12	51	49	2	-------	2	1,417	923	242	14
Morristown	12	12	11	1	-------	35	102	-------	60	14
Mt. Holly	12	9	8	1	-------	2	100	64	52	8
Newark	12	926	501	423	2	554	24,878	3,965	1,910	2,260
Orange	12	160	101	58	1	22	3,933	1,214	1,560	214
Passaic	12	30	22	8	-------	1	768	397	123	12
Paterson (2)	23	62	34	28	-------	1	2,468	627	144	-------
Plainfield	12	99	74	23	2	60	1,887	416	168	36
Spring Lake	12	51	51	-------	-------	2	264	264	52	2
Trenton	12	172	54	117	1	39	6,815	854	546	232
Weehawken	12	15	9	6	-------	7	606	72	35	12
New Mexico [2]	8	27	20	7	-------	19	474	260	82	44
Albuquerque	4	9	2	7	-------	4	351	144	41	44
Raton	4	18	18	-------	-------	15	123	116	41	-------
New York	506	5,135	3,253	1,824	58	4,804	125,821	37,419	10,959	6,252
Albany (4)	43	372	212	156	4	184	6,281	1,888	530	158
Amsterdam	12	50	27	18	5	18	1,935	753	97	33
Auburn	12	8	8	-------	-------	6	623	145	91	-------
Beacon	8	6	6	-------	-------	5	84	35	20	-------
Binghamton	12	80	67	13	-------	60	3,753	1,145	328	23
Buffalo	12	1,658	1,162	468	28	1,490	40,297	6,872	2,478	3,448
Cohoes	12	47	12	32	3	50	520	168	21	-------
Corning	11	32	29	3	-------	25	591	214	15	3

[2] For four months only; owing to lack of funds clinics were discontinued in November, 1924.

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
New York—Contd.										
Dunkirk	12	9	6	3	-------	12	204	31	42	11
Elmira	12	113	86	27	-------	79	3, 140	1, 345	233	39
Glen Falls	12	66	35	31	-------	56	2, 596	819	165	61
Gloversville	12	53	37	14	2	83	837	497	38	66
Hornell	12	17	13	4	-------	62	430	113	68	2
Hudson	3	2	2	-------	-------	3	22	15	4	8
Ithaca	12	183	61	122	-------	199	2, 679	672	105	566
Jamestown	12	96	50	46	-------	81	1, 631	547	137	71
Little Falls	11	3	2	1	-------	7	158	76	15	-------
Middletown	12	106	106	-------	-------	88	1, 608	573	-------	-------
Newburgh	12	4	4	-------	-------	3	217	51	13	-------
New Rochelle	12	114	75	37	2	136	1, 802	667	231	117
Niagara Falls	12	100	78	22	-------	166	2, 158	1, 102	252	54
Olean	12	36	36	-------	-------	52	598	255	24	-------
Oswego	12	17	12	5	-------	17	1, 443	600	22	6
Plattsburg	12	23	19	4	-------	36	373	145	63	6
Port Chester	12	38	29	9	-------	90	1, 181	368	106	13
Poughkeepsie	12	36	26	10	-------	55	1, 264	538	151	161
Rochester (5)	60	553	387	165	1	745	20, 663	12, 159	3, 348	594
Rome	12	48	21	27	-------	27	1, 309	281	88	27
Saratoga	11	18	17	1	-------	8	192	124	16	1
Schenectady	12	166	83	77	6	78	2, 954	387	142	103
Syracuse (2)	23	548	270	278	-------	329	8, 879	1, 380	1, 070	313
Troy	12	90	56	34	-------	163	1, 457	697	191	47
Utica	12	226	99	127	-------	224	7, 280	1, 136	374	128
Watertown	12	13	13	-------	-------	-------	231	107	7	-------
Wellsville	1	2	2	-------	-------	-------	8	8	7	2
White Plains	11	25	23	2	-------	33	233	176	53	2
Yonkers	12	177	82	88	7	134	6, 190	1, 330	414	189
North Carolina	57	2, 038	1, 312	643	83	870	12, 780	8, 484	3, 339	336
Ashville	10	534	227	241	66	271	3, 447	1, 050	436	55
Charlotte	12	570	275	295	-------	107	4, 007	3, 088	1, 304	198
New Bern	6	119	111	5	3	18	606	579	86	-------
Raleigh	12	158	157	1	-------	198	1, 587	791	407	-------
Wilmington	12	451	374	73	4	168	2, 265	2, 265	924	62
Winston-Salem	5	206	168	28	10	108	868	711	182	21
North Dakota	24	42	14	28	-------	28	473	78	60	209
Grand Forks	12	18	7	11	-------	9	166	35	22	21
Minot	12	24	7	17	-------	19	307	43	38	188
Ohio	449	8, 771	4, 661	3, 915	195	3, 204	154, 647	32, 530	26, 414	18, 283
Akron	12	936	299	583	54	267	26, 386	3, 575	1, 929	2, 061
Athens	12	46	44	2	-------	2	1, 378	361	234	5
Canton	12	66	50	16	-------	10	793	271	129	5
Chillicothe	12	7	7	-------	-------	16	94	94	10	-------
Cincinnati (3)	31	1, 546	944	556	46	113	24, 261	4, 337	3, 056	323
Cleveland (10)	115	3, 900	1, 632	2, 184	84	1, 902	68, 855	10, 208	11, 030	13, 939
Columbus (5)	59	760	521	234	5	485	11, 333	3, 152	4, 740	1, 062
Dayton (3)	35	558	412	145	1	98	8, 266	4, 766	2, 279	204
East Liverpool	12	144	33	106	5	106	2, 086	420	122	346
Hamilton (2)	23	35	29	6	-------	22	307	225	107	23
Lakewood	11	6	6	-------	-------	-------	46	43	35	12
Lima (2)	24	23	11	12	-------	16	1, 202	427	138	18
Massillon	12	90	90	-------	-------	26	2, 988	896	636	18
Portsmouth	11	75	75	-------	-------	47	1, 246	578	148	4
Port Clinton	11	14	12	2	-------	4	61	54	86	13
Springfield (2)	23	161	111	50	-------	66	1, 212	639	379	202
Toledo (2)	11	130	117	13	-------	2	908	479	310	32
Youngstown (2)	23	274	268	6	-------	22	3, 225	2, 005	1, 046	16
Oklahoma	18	533	334	189	10	244	13, 678	3, 164	735	507
Chickasha	4	117	50	59	8	139	2, 529	229	139	159
OklahomaCity(2)	14	416	284	130	2	105	11, 149	2, 935	596	348
Oregon	12	463	300	163	-------	15	6, 543	1, 859	981	834
Portland	12	463	300	163	-------	15	6, 543	1, 859	981	834

TABLE 4.—*Report of clinics, including those operating under the joint control of the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Pennsylvania	477	4,524	2,420	2,005	99	3,331	76,445	24,865	10,602	4,411
Allentown	12	288	195	93	--------	263	5,870	2,547	1,156	288
Altoona	12	124	61	62	1	144	2,220	831	130	123
Beaver Falls	11	42	31	11	--------	4	353	174	77	42
Bedford	3	43	29	14	--------	20	182	87	36	43
Bethlehem	12	97	85	12	--------	23	1,600	1,047	231	97
Butler	12	33	21	12	--------	34	527	179	81	33
Carlisle	12	40	36	4	--------	1	723	571	75	41
Chambersburg	12	93	55	35	3	39	1,169	500	83	90
Clearfield	7	11	10	1	--------	--------	100	--------	17	11
Coatesville	12	39	15	24	--------	--------	546	187	104	39
Connellsville	12	107	64	38	5	--------	1,096	595	164	102
Du Bois	10	62	40	22	--------	45	1,374	684	399	63
Easton	12	21	12	9	--------	25	805	209	126	22
Erie	12	222	106	116	--------	173	3,979	1,291	649	222
Greensburg	11	64	46	8	10	37	645	124	204	54
Hazleton	12	50	27	23	--------	31	1,016	138	157	50
Huntingdon	8	30	16	11	3	5	166	99	46	26
Johnstown	12	173	68	100	5	145	1,761	743	275	168
Lancaster (2)	24	68	38	30	--------	16	870	220	261	68
Lebanon	12	29	19	9	1	2	254	94	32	28
Lewistown	4	15	14	1	--------	--------	117	78	32	15
McKeesport	12	125	67	57	1	111	3,496	821	190	124
Mifflintown	10	28	14	14	--------	7	104	52	18	28
Monessen	4	20	16	3	1	--------	194	66	48	19
New Castle	12	53	44	9	--------	20	429	205	88	53
New Kensington	10	27	12	15	--------	15	450	195	96	27
Norristown	12	42	39	3	--------	9	782	491	181	42
Philadelphia	12	438	230	197	11	294	9,557	2,388	1,028	427
Pittsburgh	12	492	235	250	7	546	7,119	2,018	650	485
Pottsville	12	48	48	--------	--------	--------	773	620	45	48
Reading	6	151	55	93	3	146	2,785	--------	--------	136
Rochester	12	34	28	6	--------	--------	335	279	40	34
Scranton	12	304	94	188	22	423	5,691	1,576	830	282
Shamokin	12	45	21	24	--------	52	738	230	59	45
Sharon	12	43	40	3	--------	6	649	493	83	41
Stroudsburg	12	25	11	14	--------	25	344	70	44	23
Sunbury	12	100	44	56	--------	60	2,026	325	173	100
Tunkhannock	12	12	3	9	--------	2	130	32	18	12
Washington	12	98	55	38	5	109	1,557	531	146	93
West Chester	12	52	25	27	--------	--------	448	100	306	52
West Grove	1	3	3	--------	--------	--------	3	3	2	3
Wilkes-Barre (2)	20	510	196	293	21	447	11,184	3,584	1,902	489
York	12	223	152	71	--------	52	2,278	388	320	223
Rhode Island	69	651	342	307	2	214	13,514	5,854	5,559	2,882
Arctic	4	--------	--------	--------	--------	--------	30	30	14	--------
Newport	12	10	9	1	--------	14	209	197	25	3
Pawtucket	12	49	30	19	--------	16	2,231	502	186	37
Providence (3)	36	589	300	287	2	182	10,997	5,078	5,320	2,841
Woonsocket	5	3	3	--------	--------	2	47	47	14	1
South Carolina	32	2,360	1,170	1,108	82	1,466	38,592	8,333	1,925	6,134
Greenville	8	169	136	22	11	200	8,524	2,170	568	--------
Orangeburg	12	444	271	173	--------	380	3,316	1,545	827	--------
Spartanburg	12	1,747	763	913	71	886	26,752	4,618	530	6,134
South Dakota	24	67	22	45	--------	44	814	181	136	145
Aberdeen	12	20	11	9	--------	11	374	75	108	23
Sioux Falls	12	47	11	36	--------	33	440	106	28	122
Tennessee	51	4,900	3,001	1,497	402	2,405	72,787	18,209	22,112	7,227
Chattanooga	3	206	121	74	11	21	5,937	1,060	204	351
Knoxville	12	985	517	421	47	458	22,249	3,883	1,481	3,494
Memphis	12	2,049	1,680	317	52	878	24,281	9,999	18,038	1,598
Nashville (2)	24	1,660	683	685	292	1,048	20,320	3,267	2,389	1,784

TABLE 4.—*Report of clinics, including those operating under the joint control of the the United States Public Health Service and State boards of health, July 1, 1924, to June 30, 1925*—Continued.

State and city	Total monthly reports received	Patients admitted				Patients discharged as noninfectious	Treatments given	Doses of arsphenamin administered	Wassermann tests made	Microscopic examinations, gonococcus
		Total	Syphilis	Gonorrhea	Chancroid					
Texas	39	3,804	1,902	1,561	341	1,841	54,913	12,497	6,912	12,869
Corpus Christi	2	30	5	20	5	56	494	63	478	526
Dallas	9	351	130	204	17	331	14,967	2,355	533	410
El Paso	4	166	108	55	3	76	3,160	662	407	271
Houston	12	2,214	1,193	734	287	1,068	19,750	4,974	3,829	3,581
San Antonio	12	1,043	466	548	29	310	16,542	4,443	1,665	8,081
Utah	23	375	182	184	9	197	5,899	1,527	753	788
Salt Lake City (2)	23	375	182	184	9	197	5,899	1,527	753	788
Vermont	48	77	51	26	--------	35	1,413	888	400	227
Barre	12	11	10	1	--------	--------	200	124	72	2
Burlington (2)	24	50	27	23	--------	23	742	468	227	204
Rutland	12	16	14	2	--------	12	471	296	101	21
Virginia	106	2,982	2,059	854	69	1,108	32,656	13,876	12,150	3,803
Charlottesville	12	303	280	22	1	--------	1,830	1,830	5,066	--------
Danville	12	77	59	18	--------	18	589	388	193	23
Lynchburg	12	268	89	122	57	189	2,912	630	233	357
Newport News	12	144	112	31	1	127	7,627	1,597	835	505
Norfolk	12	468	388	80	--------	285	5,456	2,127	1,481	722
Norton	12	193	125	68	--------	145	2,878	1,152	462	40
Petersburg	12	426	340	84	2	37	4,574	3,020	1,036	167
Richmond	12	966	566	394	6	53	6,290	2,674	2,792	1,989
Roanoke	10	137	100	35	2	254	500	458	52	--------
Washington	36	1,206	562	629	15	566	22,879	4,473	6,365	5,895
Seattle	12	806	365	426	15	215	11,389	2,874	5,195	3,647
Spokane	12	300	143	157	--------	302	10,251	1,239	1,081	1,653
Tacoma	12	100	54	46	--------	49	1,239	360	89	595
West Virginia	104	1,329	891	417	21	426	19,884	7,433	2,499	1,758
Bluefield	11	19	12	7	--------	11	840	225	33	129
Charleston	12	579	387	184	8	85	4,083	1,371	1,074	482
Clarksburg	12	131	82	49	--------	176	4,928	2,160	231	511
Grafton	10	47	15	32	--------	22	493	75	18	39
Huntington	12	180	115	57	8	22	4,271	1,426	533	292
Logan	12	101	88	11	2	52	672	325	63	7
Martinsburg	2	3	2	1	--------	2	72	21	1	6
Parkersburg	8	25	20	5	--------	12	167	115	34	16
Point Pleasant	1	2	2	--------	--------	--------	6	6	2	--------
Richwood	10	12	12	--------	--------	11	158	156	23	--------
Wheeling	12	177	132	45	--------	3	3,085	1,433	456	218
Williamson	2	53	24	26	3	30	1,109	120	31	58
Wisconsin	155	1,460	734	723	3	308	13,615	6,382	10,588	6,083
Beloit	12	55	31	24	--------	35	647	297	--------	--------
Green Bay	11	18	7	11	--------	22	43	28	37	12
Janesville	12	15	4	11	--------	15	477	43	67	94
Kenosha	12	22	11	11	--------	11	402	82	274	134
La Crosse	12	61	30	31	--------	22	870	143	271	362
Madison	12	98	34	64	--------	16	1,010	256	203	157
Milwaukee (3)	36	994	543	450	1	121	6,735	4,849	9,201	4,581
Oshkosh	12	45	13	32	--------	10	766	152	92	134
Racine	12	53	17	35	1	18	561	71	187	208
Superior	12	53	33	20	--------	7	1,406	338	175	207
Wausou	12	46	11	34	1	31	698	123	81	194
Wyoming	11	165	88	74	3	64	1,131	464	803	2,536
Casper	11	165	88	74	3	64	1,131	464	803	2,536

TABLE 5.—*States ranked according to the monthly and daily admissions per clinic July 1, 1924 to June 30, 1925*

Rank	State	Monthly average new admissions per clinic	Daily average new admissions per clinic	Rank	State	Monthly average new admissions per clinic	Daily average new admissions per clinic
	United States	22.2	0.7	23	Maryland	16.0	0.5
				24	Iowa	15.7	.5
1	Texas	97.5	3.3	25	Florida	15.0	.5
2	Tennessee	96.1	3.2	26	Wyoming	15.0	.5
3	South Carolina	73.8	2.5	27	Mississippi	14.0	.5
4	Louisiana	72.5	2.4	28	Massachusetts	13.9	.5
5	California	55.2	1.8	29	West Virginia	12.8	.4
6	Alabama	52.9	1.8	30	Connecticut	12.3	.4
7	Arkansas	45.8	1.5	31	Colorado	11.1	.4
8	Georgia	44.4	1.5	32	New York	10.1	.3
9	Oregon	38.6	1.3	33	Delaware	10.1	.3
10	Michigan	38.2	1.3	34	Pennsylvania	9.5	.3
11	North Carolina	35.8	1.2	35	Rhode Island	9.4	.3
12	Washington	33.5	1.1	36	Wisconsin	9.4	.3
13	Kentucky	33.3	1.1	37	New Jersey	9.0	.3
14	Illinois	33.1	1.1	38	Kansas	8.1	.3
15	Oklahoma	29.6	1.0	39	Maine	7.5	.3
16	Virginia	28.1	.9	40	New Hampshire	3.5	.1
17	Nebraska	21.7	.7	41	New Mexico	3.4	.1
18	Ohio	19.5	.7	42	South Dakota	2.8	.1
19	Minnesota	19.0	.6	43	Montana	1.9	.1
20	Missouri	18.1	.6	44	North Dakota	1.8	.1
21	Utah	16.3	.5	45	Vermont	1.6	.1
22	Indiana	16.2	.5				

TABLE 6.—*Report of 39 correctional and penal institutions*

Patients admitted:	
Syphilis	4, 150
Gonorrhea	3, 836
Chancroid	122
Total	8, 108
Patients discharged as noninfectious	4, 314
Treatments given	242, 525
Doses of arsphenamin (or similar product) administered	23, 813
Wassermann tests made	37, 242
Microscopic examinations for gonococcus infection	10, 573

TABLE 7.—*State report of doses of arsphenamin (or similar product) distributed, July 1, 1924, to June 30, 1925*

State	Doses administered	State	Doses administered
United States	683, 591	Montana [1]	35
		Nebraska	9, 026
Alabama	44, 925	Nevada [2]	--------
Arizona	1, 798	New Hampshire [1]	1, 682
Arkansas	16, 830	New Jersey	15, 045
California [1]	82, 307	New Mexico	284
Colorado	3, 510	New York	37, 920
Connecticut	14, 752	North Carolina	16, 741
Delaware	1, 127	North Dakota	91
District of Columbia [2]	--------	Ohio	39, 441
Florida	5, 264	Oklahoma [4]	2, 632
Georgia	31, 056	Oregon	2, 009
Idaho	715	Pennsylvania	28, 686
Illinois	42, 741	Rhode Island	5, 896
Indiana	22, 381	South Carolina	8, 900
Iowa [3]	6, 137	South Dakota	181
Kansas	5, 978	Tennessee	18, 209
Kentucky	17, 802	Texas	12, 497
Louisiana	21, 063	Utah	537
Maine	2, 647	Vermont	891
Maryland	14, 172	Virginia	14, 616
Massachusetts	53, 839	Washington	4, 931
Michigan	27, 559	West Virginia	7, 457
Minnesota	7, 110	Wisconsin	6, 392
Mississippi	15, 195	Wyoming [1]	413
Missouri	10, 171		

[1] For 11 months only.
[2] Not reporting.
[3] For 7 months only.
[4] For 6 months only.

TABLE 8.—*Educational pamphlets and placards purchased and reprinted by State boards of health, July 1, 1924, to June 30, 1925*

State	Total	A	B	C	D	E	F	Others	Placards
United States	784, 560	90, 000	189, 000	107, 500	196, 000	125, 000	7, 525	63, 535	6, 000
Alabama	--------	--------	--------	--------	--------	--------	--------	--------	--------
Arizona	9, 000	--------	4, 000	--------	--------	5, 000	--------	--------	--------
Arkansas	30, 000	--------	--------	15, 000	15, 000	--------	--------	--------	--------
California [1]	50, 000	14, 000	--------	4, 000	12, 000	20, 000	--------	--------	--------
Colorado	22, 000	--------	20, 000	--------	--------	--------	--------	2, 000	--------
Connecticut	12, 000	--------	3, 000	--------	--------	--------	--------	3, 000	6, 000
Delaware	--------	--------	--------	--------	--------	--------	--------	--------	--------
District of Columbia [2]	--------	--------	--------	--------	--------	--------	--------	--------	--------
Florida	18, 000	4, 000	4, 000	6, 000	--------	4, 000	--------	--------	--------
Georgia	4, 000	--------	2, 000	--------	--------	--------	2, 000	--------	--------
Idaho	2, 000	--------	--------	--------	2, 000	--------	--------	--------	--------
Illinois	155, 000	25, 000	50, 000	15, 000	35, 000	30, 000	--------	--------	--------
Indiana	10, 000	--------	--------	5, 000	--------	5, 000	--------	--------	--------
Iowa	--------	--------	--------	--------	--------	--------	--------	--------	--------
Kansas	2, 500	--------	2, 500	--------	--------	--------	--------	--------	--------
Kentucky	30, 000	--------	--------	5, 000	25, 000	--------	--------	--------	--------
Louisiana	--------	--------	--------	--------	--------	--------	--------	--------	--------
Maine	8, 000	3, 000	--------	--------	4, 000	--------	--------	1, 000	--------
Maryland	33, 000	20, 000	--------	8, 000	5, 000	--------	--------	--------	--------
Massachusetts	2, 000	1, 000	1, 000	--------	--------	--------	--------	--------	--------
Michigan	--------	--------	--------	--------	--------	--------	--------	--------	--------
Minnesota	4, 000	--------	--------	2, 000	--------	--------	2, 000	--------	--------
Mississippi	27, 500	--------	--------	5, 000	10, 000	10, 000	--------	2, 500	--------
Missouri	--------	--------	--------	--------	--------	--------	--------	--------	--------
Montana [1]	24, 000	--------	12, 500	2, 500	6, 000	2, 000	1, 000	--------	--------
Nebraska	50, 000	10, 000	--------	10, 000	20, 000	10, 000	--------	--------	--------
Nevada [2]	--------	--------	--------	--------	--------	--------	--------	--------	--------
New Hampshire	--------	--------	--------	--------	--------	--------	--------	--------	--------
New Jersey	96, 000	13, 000	20, 000	15, 000	15, 000	5, 000	--------	28, 000	--------
New Mexico	35	--------	--------	--------	--------	--------	--------	35	--------
New York	45, 025	--------	22, 000	--------	10, 000	--------	25	13, 000	--------
North Carolina	--------	--------	--------	--------	--------	--------	--------	--------	--------
North Dakota	7, 500	--------	5, 000	--------	--------	--------	2, 500	--------	--------

[1] For 11 months only.
[2] Not reporting.

TABLE 8.—*Educational pamphlets and placards purchased and reprinted by State boards of health, July 1, 1924, to June 30, 1925*—Continued

State	Total	A	B	C	D	E	F	Others	Placards
Ohio									
Oklahoma [3]	10,000							10,000	
Oregon									
Pennsylvania	18,000			10,000	4,000	4,000			
Rhode Island	10,000		5,000		4,000			1,000	
South Carolina									
South Dakota									
Tennessee	12,000				5,000	5,000		2,000	
Texas									
Utah									
Vermont									
Virginia	10,000					10,000			
Washington									
West Virginia	52,000		38,000	5,000	4,000	5,000			
Wisconsin	31,000				20,000	10,000		1,000	
Wyoming									

[3] For 5 months only.

In the above table the letters A to F stand for the following groups: A—Men. B—The general public C—Boys. D—Parents. E—Girls. F—Educators.

TABLE 9.—*Exhibits, lantern-slide sets, and motion-picture films borrowed, or purchased by State boards of health, July 1, 1924, to June 30, 1925*

State	Exhibits	Slides	Films
United States	62	36	19
Alabama			
Arizona			
Arkansas			
California			
Colorado			
Connecticut			
Delaware			
District of Columbia [1]			
Florida			
Georgia			
Idaho			1
Illinois			
Indiana			
Iowa			
Kansas	3		6
Kentucky		1	2
Louisiana			
Maine			
Maryland			
Massachusetts	40		
Michigan			
Minnesota			1
Mississippi			3
Missouri			
Montana			
Nebraska			
Nevada [1]			
New Hampshire			
New Jersey			
New Mexico		1	
New York			3
North Carolina			
North Dakota			
Ohio			
Oklahoma			
Oregon			
Pennsylvania			
Rhode Island			
South Carolina			
South Dakota			
Tennessee			1
Texas			
Utah			
Vermont			
Virginia			
Washington			
West Virginia	16	34	2
Wisconsin	3		
Wyoming			

[1] Not reporting.

TABLE 10.—*State report of educational activities, July 1, 1924, to June 30, 1925*

State	Pamphlets distributed	Lectures			Film showings		Exhibit and slide showings	
		Number	Average attendance	Exhibit material used	Number	Average attendance	Number	Average attendance
United States	971, 003	4, 779	111	602	643	221	742	473
Alabama	28, 045	400	111		9	328	3	37
Arizona	5, 451							
Arkansas	24, 169	106	146		8	157	311	86
California [1]	36, 529	8	97		151	194	6	291
Colorado	5, 058	1	100				10	98
Connecticut	4, 929	7	166	2			4	500
Delaware		7	186		2	500		
District of Columbia[2]								
Florida	4, 140							
Georgia	4, 778	131	88	3	1	200	[3] 11	158
Idaho	678							
Illinois	109, 632	105	343		288	236	106	2, 006
Indiana	40, 999	80	153	63				
Iowa [4]	7, 824	160	152		15	149		
Kansas	15, 432	229	123	10	2	(5)	3	300
Kentucky	20, 097	30	149					
Louisiana	6, 145						(6)	(6)
Maine	2, 822	134	105					
Maryland	3, 825	2	128	2	[7] 12	833	[7] 6	1, 667
Massachusetts	21, 906	75	99	133	1	600		
Michigan	10, 319	8	94					
Minnesota	16, 138	99	51	3	10	131	4	65
Mississippi	38, 865	360	120	37				
Missouri	1, 822				19	187	5	270
Montana [1]	5, 788	46	232		2	400	5	330
Nebraska	69, 750	5	55		1	500		
Nevada [2]								
New Hampshire [1]	412	3	65					
New Jersey	79, 531	330	127	12				
New Mexico	1, 314				2	125	2	34
New York	147, 130	630	111	145			2	58
North Carolina								
North Dakota	20, 699	3	83	1	1	200	1	600
Ohio								
Oklahoma [8]	11, 697							
Oregon	8, 708	211	46		34	43		
Pennsylvania	8, 839	321	173		7	210	20	86
Rhode Island	15, 583	8	341	4	3	483	7	51
South Carolina	1, 477						[9] 3	13, 333
South Dakota	98	219	129	162				
Tennessee	30, 286	14	107	10	16	204		
Texas	19, 286							
Utah								
Vermont	49							
Virginia	22, 097	37	111		2	450	[10] 60	(5)
Washington	6, 706							
West Virginia	52, 900	33	94	15	24	198	173	81
Wisconsin	59, 050	977	52		33	184		
Wyoming [1]								

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[1] For 11 months only.
[2] Not reporting.
[3] In addition, the Attract-O-Scope was used at 3 fairs; attendance 50,000.
[4] For 7 months only.
[5] Information not available.
[6] Exhibits and slide showings at Straight College for 3 weeks; attendance not given.
[7] At Labor Circus held in Baltimore.
[8] For 5 months only.
[9] At State fair.
[10] In addition, posters were sent to 21 schools where they were kept for 2 weeks or more.

TABLE 11.—*Statistical summary of activities in the control of venereal diseases, for the fiscal years 1924 and 1925*

	1925	1924
Medical activities		
A. Cases of venereal diseases reported to State boards of health:		
I. Syphilis	200,584	[1] 194,936
II. Gonorrhea	165,523	[1] 161,676
III. Chancroid	6,706	[1] 8,484
Total	372,813	[1] 365,096
B. Doses of arsphenamin (or similar product) distributed by State boards of health	683,591	604,128
C. Clinics:		
I. Clinics established during the year	34	44
II. Clinics reporting to State boards of health	495	504
III. Reports from clinics—		
a. Patients admitted	110,372	118,023
b. Patients discharged as noninfectious	47,828	51,658
c. Treatments given	2,088,494	2,147,087
d. Wassermann tests made	300,362	302,152
e. Microscopic examinations for gonococcus infection	203,512	203,008
D. Requests for medical information received by the Public Health Service	658	694
Educational activities		
A. Pamphlets:		
I. Requests for pamphlets received by the—		
a. Public Health Service	11,862	13,453
b. State boards of health from—		
1. Public Health Service for compliance	9,334	8,309
2. The public	29,801	28,322
Total	39,135	36,631
c. Gross total requests for pamphlets received	50,997	50,084
Minus requests received by State boards of health from the Public Health Service	9,334	8,309
d. Net total requests for pamphlets received	41,663	41,775
II. Pamphlets distributed:		
a. By the Public Health Service to—		
1. State boards of health	29,208	7,372
2. Others	29,357	59,253
Total	58,565	66,625
b. By State boards of health	971,003	1,171,628
c. Gross total pamphlets distributed	1,029,568	1,238,253
Minus pamphlets distributed by the Public Health Service to State boards of health	29,208	7,372
d. Net total pamphlets distributed	1,000,360	1,230,881
III. Pamphlets and placards purchased and reprinted by State boards of health	784,560	967,452
IV. Educational venereal disease pamphlets issued by the Public Health Service	4	2
V. Revisions of venereal disease pamphlets issued by the Public Health Service	[2] 1	1
B. Lectures and addresses:		
I. Lectures and addresses reported by the—		
a. Public Health Service	230	338
b. State boards of health	4,779	5,246
Total	5,009	5,584
II. Average attendance reported by the—		
a. Public Health Service	158	182
b. State boards of health	111	115
Average attendance at total lectures	113	119

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[1] Changed from previously published 1924 figures because of additional data received after publication of the 1924 annual report.

[2] National Negro Health Week Bulletin, 1925 edition.

TABLE 11.—*Statistical summary of activities in the control of venereal diseases, for the fiscal years 1924 and 1925*—Continued

	1925	1924
Educational activities—Continued		
B. Lectures and addresses—Continued.		
III. Lectures at which exhibit material was used, reported by—		
a. Public Health Service	135	44
b. State boards of health	602	486
Total	737	530
C. Exhibits and lantern slides:		
I. Exhibits and lantern-slide sets loaned by the Public Health Service to—		
a. State boards of health	78	293
b. Public Health Service field officers	22	37
c. Others	59	86
Total	159	416
II. Exhibits and lantern-slide sets purchased and borrowed by—		
a. State boards of health	98	319
b. Others		34
Total	98	353
III. Exhibit and lantern-slide showings reported by State boards of health	742	996
IV. Average attendance reported by State boards of health	473	487
D. Motion-picture films:		
I. Motion-picture films loaned by the Public Health Service to—		
a. State boards of health	8	37
b. Public Health Service field officers	4	93
c. Others	7	20
Total	19	150
II. Motion-picture films purchased and borrowed by State boards of health	19	47
III. Motion-picture showings reported by—		
a. Public Health Service		226
b. State boards of health	643	1,266
Total	643	1,492
IV. Average attendance reported by—		
a. Public Health Service		331
b. State boards of health	221	354
Average attendance at total showings	221	350
E. Publicity material, Public Health Service:		
I. Articles furnished magazines	33	

DIVISION OF PERSONNEL AND ACCOUNTS

In charge of Asst. Surg. Gen. J. W. Kerr

Effective July 1, 1924, an adjustment of the compensation of field employees was effected, under authority from the Director of the Bureau of the Budget, acting on instructions from the President. The action was based on an act of Congress, passed by both houses during the first session of the Sixty-eighth Congress and subsequently approved by the President under date of December 6, 1924. The act carried appropriations for various departments of the Government, and the following provision:

> To enable the heads of the several executive departments and independent establishments of the Government to adjust the compensation of civilian employees in certain field services to correspond, so far as may be practicable, to the rates established by the classification act of 1923 for positions in the departmental services in the District of Columbia, the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the service of the fiscal year ending June 30, 1925.

Under the supervision of a representative of the Personnel Classification Board, the field positions had been allocated according to a "tentative schedule of grades and rates for field service positions" prescribed by the board. These rates of pay included the compensation which had for several years been appropriated and disbursed to Federal employees in the form of a bonus. The grades to which field positions in the Public Health Service were allocated were determined solely on the basis of cash compensation of employees, according to instructions, and did not take into account the value of such allowances as quarters, subsistence, and laundering, which are still furnished in kind to employees at stations where provision for the accommodation of employees on the station is necessary. The grades to which field positions were tentatively allocated, therefore, are not comparable, numerically, with the grades to which positions in the departmental service are assigned, nor were the positions classified according to the various services into which they are divided in the executive departments. With the funds appropriated by Congress it was possible to include the amount hitherto paid as a bonus in all basic rates of pay, and in numerous cases to make slight increases in total cash compensation to conform to the rates of pay in the schedule prescribed by the Personnel Classification Board.

Delays incident to filling vacancies in field positions are numerous. This is due to decision of the Comptroller General that an employee can not enter on duty prior to the date of formal approval of his appointment by the Secretary of the Treasury. Such delays frequently interfere seriously with efficient administration of field stations, and are expensive because the use of the telegraph is necessary in forwarding nominations and in notifying the stations of formal approval by the head of the department. New positions in the field are never created without prior authority of the Secretary of the Treasury;

and the requirement that vacancies in existing positions can not be filled until formal approval of a specific nomination has been secured in each case is both cumbersome and expensive.

Aside from certain increases in the field personnel of the service due to field activities on account of the recrudescence of bubonic plague on the Pacific coast and in New Orleans, there have been practically no increases in the total personnel of the service during the fiscal year. The reappearance of plague infection necessitated active measures in both investigative and eradicative work, and antiplague operations were begun with headquarters established in Oakland, Calif., Los Angeles, Calif., and New Orleans, La., in the latter part of the calendar year 1924. To what extent it will be necessary to extend this work will depend upon surveys of infected areas, and arrangements that may be effected with State and local authorities for Federal cooperation.

Throughout the fiscal year every effort has been made to keep the personnel in the field service to the lowest minimum consistent with efficient administration. In numerous instances adverse action on the recommendations of field officers has been necessary, because of limited funds and the necessity for restricting expenditures for personal services. On the whole, the cooperation of officers in the field in efforts to carry out a general policy of economy has been very gratifying.

Public Health Districts

During the fiscal year the territory within the continental United States was redistricted into six Public Health Districts, replacing the seven districts which have heretofore existed.

Public Health District No. 1 remains unchanged. The States of Kentucky, formerly in district No. 3, and Tennessee, formerly in district No. 4, have been added to district No. 2. The States of Missouri, Iowa, Minnesota, North Dakota, South Dakota, and Kansas, which formerly comprised the major portion of district No. 5, have been added to district No. 3. District No. 7, which formerly included California, Nevada, Utah, Arizona, and New Mexico, has been extended to include the State of Colorado, and the number of the district changed to No. 5. District No. 6 has been enlarged by the addition of the State of Wyoming. As changed, the Public Health districts (and the Interstate Sanitary districts, which are coextensive) now embrace the following territory:

Public Health District No. 1 (district of the North Atlantic).—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, and New Jersey.

Public Health District No. 2 (district of the Middle Atlantic).—Pennsylvania, Delaware, Maryland, District of Columbia, West Virginia, Virginia, North Carolina, South Carolina, Kentucky, and Tennessee.

Public Health District No. 3 (district of the Great Lakes and the Missouri).—Ohio, Indiana, Illinois, Wisconsin, Michigan, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, and Kansas.

Public Health District No. 4 (district of the Gulf).—Florida, Georgia, Alabama, Mississippi, Louisiana, Texas, Oklahoma, and Arkansas.

Public Health District No. 5 (district of the South Pacific).—California, Nevada, Utah, Arizona, New Mexico, and Colorado.

Public Health District No. 6 (district of the North Pacific).—Washington, Oregon, Idaho, Montana, and Wyoming.

Nearly three years' experience in the operation of the Public Health Service districts has served to demonstrate the great usefulness of the plan, as well as its efficiency and economy. The utilization of district directors as inspecting officers has enabled the bureau to dispense with the former practice of employing traveling inspecting officers on full-time duty. The location of an experienced service officer as district director in various parts of the country has also aided in the coordination of administrative procedure at field stations, has enabled the service to maintain closer contact with State and local health organizations, and has given closer supervision of the actual needs of the field service. Inspections by district directors have also brought the medical officers at small stations into much closer relationship with the work of the service as a whole through the opportunity for conferences with an experienced officer familiar with all phases of service activities.

In district No. 1, Senior Surg. E. K. Sprague has acted as director during the greater part of the year, owing to the absence of Asst. Surg. Gen. Rupert Blue, who was detailed as a representative of the United States at the Opium Conference at Geneva, Switzerland, and later to special temporary duty on the Pacific coast in connection with plague eradicative measures. The office of the district director in New York City has continued to act as the coordinating agency for supply and for motor transportation in the New York City area, and as the disbursing agency for the Public Health Service in and near New York.

A board of officers convened on instructions from the bureau by the director of the district to consider the general question of coordinated purchasing of subsistence and other supplies, reached the conclusion that the present method of purchase by a unified agency is more advantageous than purchasing by individual stations under separate contracts. Through cooperation with inspectors in charge of the local offices of the Bureau of Animal Industry (Meat Inspection Division) and the Bureau of Agricultural Economics, of the Department of Agriculture, efficient inspection of all meats, poultry, fish, butter, eggs, etc., furnished on contract has been carried out.

In addition to the work of the coordinating agency, as applying to proposals and contracts for subsistence supplies, etc., the office of the district director in New York acted upon 144 requisitions referred by the director of supply, Treasury Department, for attention. These requisitions covered a wide range of supplies for which specifications were prepared, and proposals solicited.

District No. 2, with headquarters at Baltimore, Md., has remained under the direction of Surg. B. S. Warren throughout the year. Since July 1, 1924, inspections have been made of the Marine Hospitals at Baltimore, Pittsburgh, Norfolk, Louisville, and Memphis. The relief station at Philadelphia, which is of the second class, and 17 third class relief stations throughout the district were also inspected, as well as 8 quarantine and 4 immigration stations.

The coordination and consolidation of activities at several places, in accordance with recommendations made by the district director in the last fiscal year, have been effected. At Baltimore, the quarantine and immigration work have been consolidated. At Philadelphia, quarantine and immigration activities have been consolidated under the medical officer in charge of the quarantine station at Marcus

Hook. Surveys of the work at Cape Fear quarantine, at the Baltimore Marine Hospital, at the Wilmington, N. C., relief station, and at the "laid-up fleet" at Leehall, Va., have resulted in improved service and a net saving in expenditures.

A relief station was reestablished at Whitestone, Va., upon the recommendation of the district director, and an investigation of the need of a relief station at Oriental, N. C., was adversely reported upon.

The director of district No. 2 served for two months on a board convened to consider revision of the service regulations, and rendered several reports on matters relating to the public health, including surveys of the health departments of Wilmington, Del., and Washington, D. C., made in connection with the studies of municipal health department practice being conducted by the service with headquarters at Baltimore, Md.

The work of the director of district No. 2 has not only resulted in recommendations which have effected considerable savings, but has also brought the bureau into closer contact with the smaller stations of the district.

Senior Surg. C. C. Pierce served throughout the year as director of district No. 3, with headquarters at Chicago, Ill. During the year the following inspections of relief stations were made: Port Huron and Sault Ste. Marie, Mich., on two occasions; Menominee, Grand Haven, Escanaba and Marquette, Mich., Sheboygan, Manitowoc, Green Bay and Milwaukee, Wis., Paducah, Ky., Cairo, Ill. and Toledo, Ohio.

At certain stations in the district, adjustments of compensation of the acting assistant surgeons in charge were made, in conformity with the increase or decrease of relief work at the respective stations. Reductions recommended exceeded increases and resulted in a net saving for the year.

The marine hospitals at Detroit, Mich., Evansville, Ind., St. Louis, Mo., and Cleveland, Ohio, were also inspected, and unserviceable property was inspected and disposal recommended at the hospitals at St. Louis, Detroit, Cleveland, and Chicago.

During the year, the district director visited the following United States Coast Guard Stations, and examined the eyes of the officers in charge for vision and color perception: Mackinac Island, Sleeping Bear Point, Tawas, Harrisville, Alpena, Rogers, Cheboygan, Muskegon, Holland, Newberry, Port Hope, and Harbor Beach, Mich.; Two Rivers, Kewaunee, Sturgeon Bay, Racine, Kenosha, Wis.; Lorain, Ohio.

The director served as chairman of six entrance examination boards; attended 35 meetings of organizations for the promotion of public health, most of which were held in Chicago; held approximately 30 conferences with State and local health authorities within his district; and performed numerous other duties of a public health nature, including the presentation of approximately a dozen addresses and papers. He also acted as quarantine officer at Chicago, and has served as president, since January 1, 1925, of the Chicago Federal Business Association.

Surg. John McMullen assumed the duties of district director in district No. 4 on November 10, 1924, relieving Surg. H. F. White, who served as acting director from the beginning of the fiscal year.

In December, 1924, rodent plague was discovered again to be present in the city of New Orleans; and on request of the health authorities of the city and of the State of Louisiana, the Public Health Service took charge of eradicative measures. The district director has since been in charge of antiplague operations, and all outgoing quarantine measures, and has necessarily remained in and around New Orleans during a considerable portion of the time.

All stations on the Texas-Mexican border were inspected, as were all marine hospitals in the district, and most of the quarantine and relief stations. Reports were made in the case of each inspection, and unserviceable property was surveyed.

Special attention has been given to the coordination of Service activities in and around New Orleans, and the disbursing work for that area has also been handled in the office of the district director.

Senior Surg. J. C. Perry has served throughout the year as director of district No. 5, with headquarters at San Francisco. The activities of the director during the year have included inspections, coordination of service work, service on boards, cooperation with other health agencies, and special studies.

All stations within the district were inspected, and larger stations at frequent intervals. Institutions within the district caring for service beneficiaries under contract were also visited, including both tuberculosis sanitoria and hospitals for the insane.

A special study was made of immigration on the Mexican border, in its relation to the possible introduction of typhus fever, and recommendations were made to insure proper protection.

The director has maintained close cooperation with State and local health authorities, particularly with the officials of California, since the reappearance of bubonic plague in that State. Matters relating to quarantine restrictions, immigration, and rodent extermination, both in the cities and in the surrounding country, have been given consideration and have formed the subject of numerous conferences.

The director has also served on boards of examination for admission into the commissioned medical corps of the service, on promotion boards, and on physical examination boards. He also acted as chairman of a special board detailed to investigate the plague situation in Los Angeles.

Senior Surg. G. M. Magruder, who has served as director of public health district No. 6, with headquarters at Seattle, reports that all stations within the district were visited and inspected during the year. Investigations conducted in the case of two acting assistant surgeons doing immigration work within the district resulted in the removal of both officers.

Assistance was rendered in securing and supervising preparation for shipment of diphtheritic antitoxin to Nome, Alaska, during the epidemic of diphtheria at that place. Cooperation was also given in the suppression of poliomyelitis at Tacoma, Wash.

Visits were made to Victoria and Vancouver, British Columbia, for conference with city and provincial health authorities, shipping interests, and common carriers as to plans for quarantine against Vancouver during the occurrence of a smallpox epidemic, and all border towns in the district were visited for the purpose of inaugurating measures to prevent the introduction of smallpox from Canada.

The smallpox situation also formed the subject of numerous conferences with the Washington State health authorities and the city health officer of Seattle relative to the enforcement of quarantine measures against Vancouver, British Columbia.

On investigation and recommendation of the district director, a relief station was established at Everett, Wash., and an acting assistant surgeon was placed in charge and instructed as to his duties. Similar investigations at Anacortes, Wash., and Vancouver, Wash., resulted in recommendations that stations be not established.

In addition to the duties of district director, Senior Surg. Magruder has served throughout the year as medical officer in charge of relief station 329, Seattle, and has been in charge of immigration and quarantine work at that place.

Commissioned Medical Officers

On July 1, 1924, the regular corps consisted of the Surgeon General, 4 assistant surgeons general at large, 20 senior surgeons, 122 surgeons, 30 passed assistant surgeons, and 22 assistant surgeons. Of this number, aggregating 199, 3 assistant surgeons general at large, 8 senior surgeons, 5 surgeons, and 3 passed assistant surgeons were carried on waiting orders. During the fiscal year the following changes occurred in the several grades: 1 surgeon was promoted to the grade of senior surgeon to fill a vacancy created by the placement on waiting orders of one senior surgeon; 13 passed assistant surgeons were promoted to the grade of surgeon; 4 assistant surgeons were promoted to the grade of passed assistant surgeon; 10 candidates for appointment to the grade of assistant surgeon were successful in the entrance examination prescribed by law and the regulations of the service and were commissioned in that grade; 1 senior surgeon was placed on waiting orders because of physical disability, and 1 surgeon was returned to the active list from waiting orders; 2 surgeons, 1 passed assistant surgeon, and 4 assistant surgeons resigned from the service, and one commission of the grade of assistant surgeon was canceled for the reason that the physician to whom it was tendered declined appointment.

On June 30, 1925, after the changes had occurred, the regular corps consisted of the Surgeon General, 4 assistant surgeons general at large, 21 senior surgeons, 132 surgeons, 20 passed assistant surgeons, and 23 assistant surgeons. Of these 201 officers, 3 assistant surgeons general at large, 9 senior surgeons, 4 surgeons, and 3 passed assistant surgeons were on that date on waiting orders. The total number is 17 less than in 1918, the difference being due to lack of suitable candidates to fill these vacancies.

Difficulty has been experienced in securing candidates to take the entrance examinations. Twenty-two boards were convened during the year in different parts of the country for the purpose of examining applicants for appointment, but only 30 candidates appeared before 15 of these boards. This is due to the shortage of recent medical graduates and to the greater financial returns to physicians engaged in private practice as compared with those in governmental positions.

At the close of the fiscal year 1925, six surgeons were serving by detail as assistant surgeons general in charge of divisions of the bureau in accordance with the acts approved July 1, 1902, and

July 9, 1918. One assistant surgeon general at large, three senior surgeons, and two surgeons were on duty as directors of the public health districts. One surgeon continued in general charge of the enforcement in Europe of outgoing quarantine measures applicable to vessels, their crews, and emigrants destined to ports in the United States and its dependencies. One surgeon was on detail as chief surgeon, Bureau of Mines, Department of the Interior, and one surgeon and one assistant surgeon were serving (the surgeon as medical director) on detail to the United States Employees' Compensation Commission.

Reserve Officers

On July 1, 1924, the reserve commissioned officers on active duty numbered 65, this number being composed of 1 assistant surgeon general, 3 senior surgeons, 6 surgeons, 2 dental surgeons, 19 passed assistant surgeons, 10 passed assistant dental surgeons, 21 assistant surgeons, and 3 assistant dental surgeons.

During the fiscal year 1925, the following changes occurred: 40 individuals received appointments; 2 former reserve officers were reappointed; 29 officers were ordered to active duty; 6 officers on active duty and two officers on inactive status were promoted while one officer on active duty was demoted; 1 officer on active duty and one officer on inactive status died; 7 officers on active duty and one officer on inactive status resigned; the commissions of 2 officers on active duty and 4 officers on inactive status were terminated without prejudice; 15 officers were placed on inactive status; 1 officer on active duty was dismissed from the service by the President and his commission canceled; renewal commissions were issued to 10 officers on active duty and to 6 officers on inactive status, and the commissions of 256 officers on inactive status terminated by reason of the expiration of the five-year period for which reserve officers are appointed.

On July 1, 1925, after these changes had occurred, the number of reserve officers on active duty was 68, consisting of 1 assistant surgeon general, 1 senior surgeon, 4 surgeons, 3 dental surgeons, 15 passed assistant surgeons, 11 passed assistant dental surgeons, 28 assistant surgeons, and 5 assistant dental surgeons. There were on inactive status at the close of the fiscal year 6 assistant surgeons general, 48 senior surgeons, 231 surgeons, 8 dental surgeons, 171 passed assistant surgeons, 14 passed assistant dental surgeons, 104 assistant surgeons, and 12 assistant dental surgeons, the total numbering 594.

Attending Specialists

On July 1, 1924, there were 141 attending specialists in the service, and during the year this number increased to 156, of which number 133 were consultants to marine hospitals, while 23 were available for call at second and third class relief stations.

At the close of the fiscal year, 28 attending specialists were receiving nominal compensation of $1 per annum, and 61 were carried on a fee basis, receiving fixed fees for consultations, examinations, treatments, and major and minor operations; 67 were receiving annual salaries which in many cases were practically nominal.

Acting Assistant Surgeons

During the year, the United States Civil Service Commission effected the establishment of a centralized list of eligibles for the position of acting assistant surgeon, which is maintained in Washington and from which all selections for the position must be made, regardless of the location of the vacancy. Eligible lists for this class of personnel are no longer maintained by the district civil-service secretaries. The scarcity of eligibles who are willing to accept appointment wherever vacancies occur and at the rates of pay offered for the positions has, in numerous instances, necessitated recommendation of local physicians and dental officers with the understanding that they meet the requirements for temporary appointment, and will immediately apply for examination to establish their civil-service status.

On July 1, 1924, there were 466 acting assistant surgeons in the Public Health Service, and by June 30, 1925, this number had increased by 30.

Of the 496 acting assistant surgeons on duty July 1, 1925, 109 were on duty at marine hospitals, 305 were engaged in immigration, relief, and maritime, border, insular, and foreign quarantine work, while 2 were employed in plague suppressive measures; 4 were engaged in the prevention of trachoma; 16 were on duty in connection with field investigations of public health and rural sanitation; 1 was engaged in national park sanitation; 12 were on detail with the United States Coast Guard; 4 were serving with the Bureau of Mines by detail, and 43 were engaged in antivenereal disease activities as part-time employees at nominal compensation. Fourteen of the 43 acting assistant surgeons engaged in antivenereal disease activities held appointments as collaborating epidemiologists.

On July 1, 1925, there were five vacancies in the position of acting assistant surgeon. Four of these vacancies were in the medical personnel detailed to the United States Coast Guard, and one was at Ellis Island immigration station.

Internes

On July 1, 1924, there were 20 internes in the service, 2 of whom were students; and on July 1, 1925, there were 18, including 4 students. Internes are appointed locally under paragraphs 95, 96, and 97 of service regulations for temporary periods of one year for duty at marine hospitals. One interne vacancy existed at Marine Hospital No. 43, Ellis Island, N. Y., at the close of the fiscal year 1925.

Contract Dental Surgeons

On July 1, 1924, there were 27 contract dental surgeons employed at marine hospitals and second and third class relief stations. These part-time employees are appointed for local duty to receive fixed and uniform fees for dental work performed for service beneficiaries.

At the close of the fiscal year, 6 contract dental surgeons were at marine hospitals and 23 were at second and third class relief stations.

COLLABORATING EPIDEMIOLOGISTS

The number of collaborating and assistant collaborating epidemiologists remained practically unchanged during the fiscal year. These employees are health officers or employees of State or local boards of health, who receive only nominal compensation from the Federal Government and who furnish the service with reports of communicable diseases received by State or local health organizations. During the year the number of collaborating epidemiologists remained at 42, these appointees being on duty in the different States, and the number of assistant collaborating epidemiologists was decreased from 4,261 to 4,258. Fourteen of the collaborating epidemiologists also hold appointments as acting assistant surgeons under the division of venereal diseases.

HYGIENIC LABORATORY

At the close of the fiscal year the personnel of the Hygienic Laboratory included, in addition to the director and assistant director, 3 chiefs of divisions, 10 surgeons, 2 passed assistant surgeons, 2 pharmacists, 1 technical assistant, 4 special experts, 1 pharmacologist, 1 assistant pharmacologist, 2 junior pharmacologists, 5 chemists, 3 assistant chemists, 1 associate chemist (part time), 1 biochemist, 3 associate bacteriologists, 2 assistant bacteriologists, 1 junior bacteriologist, 1 bacteriological technician, 1 biologist, 1 associate biologist, 1 pathologist, 1 artist, 18 other technical employees, 9 administrative and clerical employees, and 41 laboratory attendants and others.

PHARMACISTS AND ADMINISTRATIVE ASSISTANTS

At the close of the fiscal year there were on duty 37 pharmacists and 19 administrative assistants in the service. The number of employees in this class of personnel remains practically the same. The resignation of one administrative assistant during the year was responsible for the decrease from 20 to 19.

At the end of the fiscal year the pharmacists and administrative assistants were classed as follows:

Pharmacists, first class	35
Pharmacists, second class	2
Administrative assistants, first class	5
Administrative assistants, second class	6
Administrative assistants, third class	8

BOARDS CONVENED

During the year, 131 boards were convened throughout the various branches of the service. Four were convened for the physical examinations of detained aliens; 11 for the examination of commissioned officers of the service to determine their fitness for promotion to the next higher grade; 22 for examination of applicants for appointment as assistant surgeon in the regular corps; 2 for the purpose of inspecting service property; 3 for the examination of scientific personnel to determine eligibility for promotion; 2 to examine pharmacists to determine eligibility for promotion; 1 for the physical examination of Coast Guard employees; 20 for the physical examination of Coast

Guard officers for promotion; 38 for physical examination of applicants for cadets in the United States Coast Guard; 20 for the physical examination of candidates for temporary commissioned and temporary warrant officers of the United States Coast Guard; 2 for the examination of Coast Guard officers as to physical condition; 1 for examination of service employee to determine physical fitness for retention in the service; 1 to investigate and report on matters relative to the care and treatment of leprosy; 1 to examine and make recommendation on the selected site for new marine hospital; 3 for examination of feeble-minded aliens.

The board appointed May 24, 1923, to advise with the chairman of the Employee's Compensation Commission and to assist the commission in the establishment of standards with respect to occupational diseases and claims for compensation, has rendered opinions on eight such cases during the year.

Personnel Statement

Accompanying is a statement showing the number of personnel, by classes and activities, in the service on June 30, 1925, the close of the fiscal year.

Personnel of the Public Health Service, June 30, 1925

	Medical and scientific																		
	Regular Corps							Reserve Corps											
	Surgeon general	Assistant surgeon general at large	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Acting assistant surgeon	Attending specialist and consultant	Contract dental surgeon	Interne	Scientific personnel	Assistant collaborating epidemiologist	Pharmacist
BUREAU																			
Surgeon General's office	1				1														
Chief Clerk's office																			
Divisions			6		2					1									1
General inspection service								1	1										
Detailed to other offices					2		1						4						1
Total																			
FIELD																			
Coast Guard					1						4	1	12						
General inspection service																			
Perry Point, Cecil County, Md																			1
Public Health Service districts		1		3	2														1
Waiting orders		3		9	4	3													
Hospital division:																			
Marine Hospital No. 1, Baltimore, Md					2							2	7	11		1			1
Marine Hospital No. 2, Boston, Mass				1	1		1					1	2	10		2			1
Marine Hospital No. 3, Buffalo, N. Y					1						3		2	11		2			
Marine Hospital No. 5, Chicago, Ill					2						2	2	7	7					1
Marine Hospital No. 6, Cleveland, Ohio					1					1	1		4	6					1
Marine Hospital No. 7, Detroit, Mich					1								5	7					1
Marine Hospital No. 8, Evansville, Ind					1								1	3	1				1
Marine Hospital No. 9, Fort Stanton, N. Mex					1		2				1		5						
Marine Hospital No. 10, Key West, Fla					1									1	1				1
Marine Hospital No. 11, Louisville, Ky					1								3	6	1				1
Marine Hospital No. 12, Memphis, Tenn					1								1	5	1	1			
Marine Hospital No. 13, Mobile, Ala					1		1					1	4	3					1
Marine Hospital No. 14, New Orleans, La					2		1				1	10	6	6		3			1

Marine Hospital No. 15, Pittsburgh, Pa				1									4	5		1			
Marine Hospital No. 16, Portland, Me					1								1	9	1				
Marine Hospital No. 17, Port Townsend, Wash					1						1		4						
Marine Hospital No. 18, St. Louis, Mo					1								4	12					1
Marine Hospital No. 19, San Francisco, Calif				1	2		2			1	3	4	5	3		1			2
Marine Hospital No. 20, Savannah, Ga					1						1		8	6					1
Marine Hospital No. 21, Stapleton, N. Y					3		1			2		6	9						2
Marine Hospital No. 22, Vineyard Haven, Mass					1									1	1				
Marine Hospital No. 43, Ellis Island, N. Y					3	1	2						5			5			
Marine Hospital No. 66, Carville, La													5	4					
Marine Hospital No. 70, Hudson St., N. Y				1	1	1					3	1	14	13		2			1
Marine Hospital No. 82, Norfolk, Va					2					2	3	3	3	4					1
Total hospitals																			
Relief stations:																			
Second class				2	3	1	1				1	1	18	21	10				2
Third class													88	3	13				
Miscellaneous											2	1		3					
Total relief stations																			
Foreign quarantine division:																			
Baltimore, Md													2						
Boston, Mass					1		1						4						1
Ellis Island, N. Y. (immigration)					5	4	2						14						
El Paso, Tex					1								2						
Galveston, Tex				1									1						
Fort Monroe, Va					1								1						1
Laredo, Tex													2						
Marcus Hook, Pa					1								1						
New Orleans, La					1	1							4						
Rosebank, N. Y					4	1							11						2
San Francisco, Calif. (immigration and quarantine)					2		2						2						
San Juan, P. R					1								2						
Foreign ports					16	3	1						70						1
All others					8								83						
Total																			
Domestic quarantine division:																			
Texas Mexican border																			
San Francisco, Calif					1														
Interstate and others					3								1				11		
Trachoma					1								4						1
Rural sanitation					3	1							5						
Louisiana and California plague					4	1	2						2						1
Total																			

Personnel of the Public Health Service, June 30, 1925—Continued

	Medical and scientific																		
	Regular Corps							Reserve Corps										
	Surgeon general	Assistant surgeon general at large	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Assistant surgeon general	Senior surgeon	Surgeon	Passed assistant surgeon	Assistant surgeon	Acting assistant surgeon	Attending specialist and consultant	Contract dental surgeon	Interne	Scientific personnel	Assistant collaborating epidemiologist	Pharmacist
FIELD—continued																			
Scientific research division:																			
Hygienic laboratory					12	2								2					2
Leprosy investigation					2									3					
Malaria					2		1						2				3		1
Nutrition studies					1									1					
Stream pollution					1		1							6			6		1
Sewage disposal														4					
Industrial hygiene and sanitation					3		1						5	12			1		1
Child hygiene				1	1								3	3			1		
Morbidity statistics														4			1		
All others					4	1							1				2		
Total																			
Sanitary reports and statistics division																		4,258	
Venereal diseases division													44	17					
Miscellaneous				1															1
Total	1	4	6	21	126	20	23	1	1	7	26	33	497	212	29	18	25	4,258	37

	General and technical												Totals			
	Collaborating epidemiologist	Administrative assistant	Druggist	Nurse	Aide	Dietitian	Laboratorian in roentgenology	Laboratorian in bacteriology	Pilot	Marine engineer	Clerk	All other employees	Medical and scientific	General and technical	Sub	Grand total
BUREAU																
Surgeon General's office											4	2	2	6	8	
Chief clerk's office											28	24		52	52	
Divisions				2							131	5	10	138	148	
General inspection service											2		2	2	4	
Detailed to other offices											32	1	8	33	41	
Total													22	231		253
FIELD																
Coast Guard													18			18
General inspection service																
Perry Point, Cecil County, Md											4	11	1	15		16
Public Health Service districts		1									2		7	3		10
Waiting orders													19			19
Hospital division:																
Marine Hospital No. 1, Baltimore, Md		1	1	18	2	2	1	1			7	56	24	89	113	
Marine Hospital No. 2, Boston, Mass		1		14	1	1	1	1			4	53	19	76	95	
Marine Hospital No. 3, Buffalo, N. Y		1		10		1					6	22	19	40	59	
Marine Hospital No. 5, Chicago, Ill			1	14	2	2	1	1			7	53	21	81	102	
Marine Hospital No. 6, Cleveland, Ohio				11	1	1		1			7	27	14	48	62	
Marine Hospital No. 7, Detroit, Mich				9	2						5	28	14	44	58	
Marine Hospital No. 8, Evansville, Ind				4							3	14	7	21	28	
Marine Hospital No. 9, Fort Stanton, N. Mex		1		10	2	1					14	101	9	129	138	
Marine Hospital No. 10, Key West, Fla				4							1	11	4	16	20	
Marine Hospital No. 11, Louisville, Ky			1	7							5	18	12	31	43	
Marine Hospital No. 12, Memphis, Tenn				6			1				3	20	9	30	39	
Marine Hospital No. 13, Mobile, Ala				10	1		1	1			3	33	11	49	60	
Marine Hospital No. 14, New Orleans, La		1	1	30	4	3	1	2			15	96	30	153	183	
Marine Hospital No. 15, Pittsburgh, Pa		1	1	8	1						3	16	11	30	41	
Marine Hospital No. 16, Portland, Me		1		5							1	13	12	20	32	
Marine Hospital No. 17, Port Townsend, Wash				10	1	1					2	29	6	43	49	
Marine Hospital No. 18, St. Louis, Mo				7			1				5	23	18	36	54	
Marine Hospital No. 19, San Francisco, Calif			2	33	6	2	1	1			6	99	24	150	174	
Marine Hospital No. 20, Savannah, Ga		1	1	13	1	1		1			6	35	17	59	76	
Marine Hospital No. 21, Stapleton, N. Y			1	28	4	2	1	1			13	123	23	173	196	
Marine Hospital No. 22, Vineyard Haven, Mass				2							1	7	3	10	13	
Marine Hospital No. 43, Ellis Island, N. Y		2		42	2	3	1	1			11	159	16	221	237	
Marine Hospital No. 66, Carville, La		2		1							7	259	9	269	278	

Personnel of the Public Health Service, June 30, 1925—Continued

	General and technical												Totals			
	Collaborating epidemiologist	Administrative assistant	Druggist	Nurse	Aide	Dietitian	Laboratorian in roentgenology	Laboratorian in bacteriology	Pilot	Marine engineer	Clerk	All other employees	Medical and scientific	General and technical	Sub	Grand total
FIELD—continued																
Hospital division—Continued.																
Marine Hospital No. 70, Hudson St., N. Y.		1	1	5	6		1	1			18	43	37	76	113	
Marine Hospital No. 82, Norfolk, Va.			1	21	1	2	1	1			9	78	18	114	132	
Total hospitals													387	2,008		2,395
Relief stations:																
Second class		1	1	5	1		1	2			16	12	60	39	99	
Third class											13		104	13	117	
Miscellaneous													6		6	
Total relief stations													170	52		222
Foreign quarantine division:																
Baltimore, Md.		1							1	1		18	2	21	23	
Boston, Mass.				3					3	3	1	23	7	33	40	
Ellis Island, N. Y. (immigration)											5	14	25	19	44	
El Paso, Tex.											1	13	3	14	17	
Galveston, Tex.		1							2	2	1	12	2	18	20	
Fort Monroe, Va.									2	2	1	28	3	33	36	
Laredo, Tex.												12	2	12	14	
Marcus Hook, Pa.				2					2	2		12	2	18	20	
New Orleans, La.		1		1					2	2		33	6	39	45	
Rosebank, N. Y.				2					3	4	11	131	18	151	169	
San Francisco, Calif. (immigration and quarantine)				1					3	2	4	45	6	55	61	
San Juan, P. R.										1	2	23	3	26	29	
Foreign ports				1							5	7	91	13	104	
All others		1	1	3					14	16	10	182	91	227	318	
Total													261	679		940
Domestic quarantine division:																
Texas Mexican border												10		10	10	
San Francisco, Calif.											1	22	1	23	24	
Interstate and others											3	43	15	46	61	

Trachoma				11							1	12	6	24	30	
Rural sanitation				8							1	91	9	100	109	
Louisiana and California plague											11	165	10	176	186	
Total													41	379		420
Scientific research division:																
Hygienic laboratory											9	92	18	101	119	
Leprosy investigation											1	4	5	5	10	
Malaria											1	9	9	10	19	
Nutrition studies											3	6	2	9	11	
Stream pollution											3	19	15	22	37	
Sewage disposal													4		4	
Industrial hygiene and sanitation				3							7	7	23	17	40	
Child hygiene				3							4	4	9	11	20	
Morbidity statistics											8	4	5	12	17	
All others											16	21	8	37	45	
Total													98	224		322
Sanitary reports and statistics division	27												4, 258	27		4, 285
Venereal diseases division												13	61	13		74
Miscellaneous													2			2
Total	27	19	13	367	38	22	13	15	32	35	504	2, 546	5, 345	3, 631		8, 976

Accounts Section

During the year just closed, the cost accounting work in connection with the hospital and relief work has been transferred from the division of marine hospitals and relief, and made a part of the bookkeeping unit of the division of personnel and accounts. The accounts section of this division now consists of a bookkeeping unit, voucher audit unit, transportation audit unit, and pay roll audit unit.

As an appendix to this report there is printed a tabulated financial statement showing appropriations, expenditures, and balances for the fiscal year 1925.

CHIEF CLERK'S OFFICE

FORCE ON DUTY IN THE BUREAU

At the close of the fiscal year the number of departmental employees in the bureau was 238, which included 30 detailed for duty to the Bureau of Supply, 2 to the Treasury Department, and 1 to the Personnel Classification Board. It is worthy of note that, while the work of the bureau showed a tendency to increase, it was found possible, through careful distribution of duties and increased efficiency, to make a net reduction of 23 employees as compared with the preceding year. The average salary at the end of the year was $1,687, as compared with $1,702 at the beginning of the year. The average salary of the discontinued positions was $1,773, and the total saving was approximately $40,780.

There were 7 promotions during the year, while decreases in salary occurred in 17 instances, due principally to filling vacancies at minimum rates of pay in accordance with the law.

PUBLIC HEALTH SERVICE LIBRARY

During the year 512 bound volumes and approximately 600 pamphlets were added to the library, making a net total at the close of the fiscal year of 11,048 volumes and approximately 5,050 pamphlets. The library received regularly 130 medical and scientific journals, of which 35 were paid subscriptions. Approximately 115 monthly and weekly bulletins from State, city, and foreign health departments, were also received.

Numerous books were borrowed from other libraries in the city, the broad field of the bureau's work making it necessary to call frequently upon the resources of other Government agencies. The circulation system included the loaning of books to officers engaged upon work outside of Washington, and also the furnishing to such officers of photostat copies of portions of scientific books and journals The circulation of books, however, is not the principal work of the library force, as a greater portion of its effort is devoted to research and reference work in response to requests for information.

PRINTING AND BINDING

The total expenditure for printing and binding was $90,397.70. Of this amount, $78,378.88 was used for printing publications, $8,582.44 for printing blank forms and records, and $3,436.38 for binding books for library use, both in Washington and at field stations. The number of copies of publications printed was 1,214,086 and of blank forms, 4,081,750.

IMPROVEMENTS AND ECONOMIES

Further progress was made in utilizing Government-owned telegraph lines and in promoting economy in telegraph tolls by the fullest use of the mails. Expenditures for supplies and services for the bureau were reduced from $15,292.97 in 1924 to $13,179.89 in 1925. The new bureau files system was developed and extended and a careful study made of field records with a view to the destruction of obsolete and useless papers, thus saving valuable office space.

Punctuality in reporting for duty showed further improvement, the cases of tardiness averaging 2.3 per annum per employee as compared with 2.5 in the previous year.

RECOMMENDATIONS

Scientific Research

In view of the fact that a material increase in population tends to a more than corresponding increase in sickness and death, it is of the utmost importance that research into the causes and control of disease be continued and enlarged. Every effort should be made to discover less expensive measures to be applied in the combating of disease. The maintenance by the Government of efficient and unbiased scientific workers who are able to render trustworthy opinions on public health matters constitutes an invaluable service on behalf of the people and results in nation-wide economy, since their skilled services and the results of their work are constantly at the disposal of Federal, State, and local health authorities. This was well illustrated in the recent outbreak of typhoid fever due to shellfish shipped from a single point. It will be recalled that until the source of the infection was determined by the Public Health Service and measures were taken to insure the safety of these products, the shellfish industry was well-nigh paralyzed.

Prevention of the Spread of Disease in Interstate Traffic

In the prevention of the spread of disease in interstate traffic, much still remains to be done in connection with the safeguarding of water supplies used on board trains and vessels. It is necessary, also, in the interest of the national health, to procure through cooperative activity, the establishment of full-time county health workers generally. This can best be done by further developing the activity which has been carried on under the general terms of rural sanitation.

National Quarantine Service

Attention is invited to the urgent necessity for repairs and new buildings in connection with the quarantine service. New construction is urgently needed at Sabine Pass, Tex., and San Pedro, Calif. Extensive shipping operations are now being carried on at both of these ports and are increasing continually. There are no facilities whatever for housing passengers and members of crews who may be detained in quarantine at these places. In view of changed conditions and the rapid growth of shipping interests at the port of New Orleans, La., it is necessary for efficiency of service and economy of administration that the quarantine station be removed from its present position, a distance of 90 miles from the city of New Orleans, and located on a suitable site near the city.

CONSTRUCTION AND REPAIR OF MARINE HOSPITALS

As mentioned in each annual report for a number of years, there is urgent need of much new construction for replacements and extensions of marine hospital buildings. A number of these structures in some of our most important ports are from 50 to 60 years old, and it will not be possible much longer for the Government to fulfill its constantly growing obligations unless conditions are improved. To conduct hospital operations, year after year, in dilapidated buildings is of doubtful economy, lowers efficiency, provokes criticism, fosters discontent, and tends to produce resentment in cities which exhibit pride in their public institutions. Reconstruction of marine hospitals at New Orleans and San Francisco, replacement at other important stations of buildings which are really unfit for hospital use, and additions to increase capacity and housing facilities for nurses and other personnel are urgently needed.

PERSONNEL

Attention has already been invited to the fact that higher standards of medical education and consequent smaller number of graduates in recent years have caused increased difficulties in securing additions to the corps of commissioned medical officers. By reason of diversity of duties and the emergency nature of these duties, mobility of personnel is essential to efficient public health work. Provision should be made for the enlargement of the commissioned corps in order to establish uniformity in the matter of appointment and conditions of service of professional and scientific personnel performing related public health duties.

DETAIL OF OFFICERS FOR DUTY WITH OTHER BRANCHES OF THE GOVERNMENT

Attention has been repeatedly directed, both by congressional committees and others, to the number of public health activities now scattered throughout Government organizations whose major purpose is not public health. Pending perhaps more radical changes by the Congress, it is believed that much good might be accomplished by suitable legislation providing for the detail of personnel of the Public Health Service to such departments, bureaus, or independent establishments to perform public health functions either by direction of the President or by request of the head of such departments to the Surgeon General.

CONTROL OF VENEREAL DISEASES

Recalling the fact that the number of insane and feeble-minded, many of whom are in this condition as a result of preventable venereal disease, and in view of the many other serious consequences of these diseases, it is earnestly recommended that adequate appropriations be maintained for the continuance of this activity.

HUGH S. CUMMING,
Surgeon General.

To the Honorable A. W. MELLON,
Secretary of the Treasury.

APPENDIX

FINANCIAL STATEMENT

The following is a statement of expenditures from appropriations for the Public Health Service for the fiscal year 1925:

Appropriation	Appropriated	Obligations			Unobligated balance
		Incurred	Liquidated	Outstanding	
Salaries, office of Surgeon General, Public Health Service	$104, 405. 00	$103, 167. 12	$103, 167. 12		$1, 237. 88
Books, Public Health Service	500. 00	499. 93	496. 16	$3. 77	. 07
Freight, transportation, etc., Public Health Service	30, 000. 00	30, 000. 00	20, 030. 44	9, 969. 56	
Maintenance, Hygienic Laboratory, Public Health Service	44, 600. 00	42, 858. 69	36, 236. 97	6, 621. 72	1, 741. 31
Pay, etc., commissioned officers and pharmacists, Public Health Service	1, 135, 000. 00	1, 096, 432. 30	1, 093, 103. 76	3, 328. 54	38, 567. 70
Pay of acting assistant surgeons, Public Health Service	322, 228. 00	316, 382. 16	316, 275. 33	106. 83	5, 845. 84
Pay of other employees, Public Health Service	1, 027, 827. 00	1, 016, 964. 41	1, 016, 964. 41		10, 862. 59
Preparation and transportation of remains of officers, Public Health Service	3, 000. 00	1, 163. 43	1, 163. 43		1, 836. 57
Pay of personnel and maintenance of hospitals, Public Health Service	[1] 5, 748, 884. 46	5, 644, 032. 32	5, 549, 947. 53	94, 084. 79	104, 852. 14
Medical and hospital services, Veterans' Bureau (transfer to Public Health Service, act June 7, 1924)	384, 960. 00	384, 904. 99	373, 651. 21	11, 253. 78	55. 01
Salaries and expenses, Veterans' Bureau (transfer to Public Health Service, act June 7, 1924)	18, 580. 00	16, 627. 03	16, 626. 67	. 36	1, 952. 97
Quarantine Service	479, 000. 00	460, 883. 98	416, 634. 56	44, 249. 42	18, 116. 02
Preventing the spread of epidemic diseases	363, 482. 00	363, 482. 00	354, 832. 85	8, 649. 15	
Preventing the spread of epidemic diseases, 1925 and 1926	275, 000. 00	172, 125. 71	159, 552. 58	12, 573. 13	102, 874. 29
Field investigations of public health	299, 356. 00	283, 724. 10	278, 636. 97	5, 087. 13	15, 631. 90
Interstate quarantine service	22, 530. 00	22, 164. 74	18, 425. 11	3, 739. 63	365. 26
Interstate quarantine service, 1925 and 1926	57, 600. 00	7, 998. 78	6, 001. 28	1, 997. 50	49, 601. 22
Studies of rural sanitation, Public Health Service	75, 760. 00	73, 760. 00	65, 130. 56	8, 629. 44	2, 000. 00
Control of biologic products, Public Health Service	45, 020. 00	42, 052. 50	40, 752. 47	1, 300. 03	2, 967. 50
Expenses, Division of Venereal Diseases, Public Health Service	149, 040. 00	126, 761. 68	123, 195. 29	3, 566. 39	22, 278. 32
Marine hospitals:					
Baltimore, Md	[2] 387. 12				387. 12
Savannah, Ga	[2] 10, 128. 07	7, 735. 94	7, 735. 94		2, 392. 13
Boston, Mass	[2] 16, 462. 26	1, 254. 00	1, 254. 00		15, 208. 26
Cleveland, Ohio	[2] 474. 95				*474. 95*
New Orleans, La	[2] 887. 67				887. 67
San Francisco, Calif	[2] 880. 02				*880. 02*
Quarantine stations:					
Boca Grande, Fla	[2] 500. 00				*500. 00*
Boston, Mass	[2] 3, 835. 72				3, 835. 72
Brunswick, Ga	[2] 4, 279. 37				*4, 279. 37*
Cape Charles, Va	[2] 1, 358. 05				*1, 358. 05*
Charleston, S. C	[2] 634. 46				*634. 46*
Chesapeake Bay (site)	[2] 6, 935. 00				*6, 935. 00*

Amounts printed in italics represent unexpended balances carried to the surplus fund of the Treasury as of June 30, 1925.

[1] Includes $330,135.46 reimbursements for care and treatment of Veterans' Bureau patients.

[2] Balance available as of June 30, 1924.

Financial statement—Continued

Appropriation	Appropriated	Obligations			Unobligated balance
		Incurred	Liquidated	Outstanding	
Quarantine stations—Continued.					
Columbia River	[2] $4,146.66				*$4,146.66*
Columbia River (boarding vessel)	[2] 5,750.90				*5,750.90*
Delaware Breakwater	[2] 857.00				*857.00*
Gulf	[2] 868.39				*868.39*
Honolulu, T. H	[2] 390.52				*390.52*
Key West and Mullet Key, Fla	[2] 19,996.83				*19,996.83*
Mobile, Ala	[2] 10,000.00				*10,000.00*
New Orleans, La	[2] 5,750.90				*5,750.90*
Pensacola, Fla	[2] 919.52				*919.52*
Port Townsend, Wash	[2] 20,806.53				*20,806.53*
San Diego, Calif	[2] 760.37				*760.37*
San Francisco, Calif	[2] 6,393.70				*6,393.70*
San Juan and Ponce, P. R	[2] 3,414.42				*3,414.42*
Savannah, Ga	[2] 12,063.65				*12,063.65*
South Atlantic	[2] 2,729.90				*2,729.90*
Leprosy Hospital, Honolulu, Hawaii	[2] 16,969.43				*16,969.43*
	10,745,353.87	$10,214,975.81	$9,999,814.64	$215,161.17	530,378.06

[2] Balance available as of June 30, 1924.

Statement showing detailed expenditures, as required by act approved March 6, 1920:

Preventing the spread of epidemic diseases

Purpose	Allotted	Obligations			Unobligated balance
		Incurred	Liquidated	Outstanding	
Trachoma prevention	$53,804.87	$53,804.87	$53,714.93	$89.94	
Expenses at foreign quarantine stations and certain ones in the United States engaged in epidemic work	127,324.00	127,324.00	122,179.58	5,144.42	
Rocky Mountain spotted fever control, including maintenance of laboratory at Hamilton, Mont	24,770.07	24,770.07	23,243.62	1,526.45	
Payment of personnel and other expenses of Quarantine Division in connection with plague activities	154,559.65	154,559.65	152,741.26	1,818.39	
Vaccine and vaccine points at United States marine hospitals and relief stations	2,028.97	2,028.97	1,978.00	50.97	
Postage for mailing epidemic reports to foreign countries	947.34	947.34	947.34		
Traveling expenses, telegrams, etc., of regional directors engaged in epidemic work	47.10	47.10	28.12	18.98	
Total appropriation, fiscal year 1925	363,482.00	363,482.00	354,832.85	8,649.15	
Payment of personnel and other expenses of Quarantine Division in connection with plague activities	111,774.00	110,096.56	104,806.64	5,289.92	$1,677.44
Expenses at foreign quarantine stations and certain ones in the United States engaged in epidemic works	49,105.00	43,803.66	38,785.89	5,017.77	5,301.34
Trachoma prevention	18,500.00	18,225.49	15,960.05	2,265.44	274.51
Unallotted balance	95,621.00				95,621.00
Total appropriation, 1925 and 1926	275,000.00	172,125.71	159,552.58	12,573.13	102,874.29
Grand total	638,482.00	535,607.71	514,385.43	21,222.28	102,874.29

Analysis of expenditures in accordance with General Accounting Office Bulletin No. 1 of May 11, 1922:

Preventing the spread of epidemic diseases

		1925 appropriation	1925 and 1926 appropriation	Total
	PERSONAL SERVICES			
01	Personal services	$285, 310. 09	$145, 215. 60	$430, 525. 69
0150	Special personal services	30. 00		30. 00
01	Total personal services	285, 340. 09	145, 215. 60	430, 555. 69
	SUPPLIES AND MATERIALS			
0200	Stationery and office supplies	1, 374. 35	178. 78	1, 553. 13
0210	Medical and hospital supplies	4, 810. 22	2, 387. 30	7, 197. 52
0220	Scientific and educational supplies	6, 498. 72	210. 74	6, 709. 46
0230	Fuel	1, 904. 35	327. 29	2, 231. 64
0240	Wearing apparel and sewing supplies	96. 29	2. 75	99. 04
0250	Forage and supplies for animals	1, 172. 85	116. 68	1, 289. 53
0260	Provisions	10, 645. 08	2, 568. 98	13, 214. 06
0280	Sundry supplies	3, 084. 80	145. 79	3, 230. 59
0290	Materials	259. 10	10. 50	269. 60
02	Total supplies and materials	29, 845. 76	5, 948. 81	35, 794. 57
	COMMUNICATION SERVICE			
0500	Telegraph service	476. 94	274. 19	751. 13
0510	Telephone service	695. 76	256. 75	952. 51
05	Total communication service	1, 172. 70	530. 94	1, 703. 64
06	Travel expenses	20, 315. 98	3, 803. 04	24, 119. 02
07	Transportation of things	2, 145. 54	280. 19	2, 425. 73
10	Heat, light, power, and water	987. 80	191. 19	1, 178. 99
11	Rents	5, 985. 56	2, 550. 85	8, 536. 41
12	Repairs and alterations	227, 63	65. 70	293. 33
13	Miscellaneous current expenses	2, 799. 28	759. 27	3, 558. 55
	EQUIPMENT			
3000	Automotive equipment	5. 00		5. 00
3010	Furniture and fixtures	1, 854. 58	2. 99	1, 857. 57
3020	Educational, scientific, and recreational equipment	645. 71	152. 00	797. 71
3050	Other equipment	3, 507. 22	52. 00	3, 559. 22
30	Total equipment	6, 012. 51	206. 99	6, 219. 50
	Total expenditures	354, 832. 85	159, 552. 58	514, 385. 43

Quarantine service—Expenditures by stations

Name of station	Pay and allowances of officers and employees	Maintenance	Total
Baltimore, Md	$33, 221. 24	$29, 249. 92	$62, 471. 16
Beaufort, S. C	900. 00	202. 95	1, 102. 95
Biscayne Bay, Fla	697. 67	42. 00	739. 67
Boca Grande, Fla	2, 788. 00	747. 76	3, 535. 76
Boston, Mass	50, 831. 97	44, 074. 57	94, 906. 54
Brownsville, Texas	8, 866. 65	952. 92	9, 819. 57
Brunswick, Ga	5, 506. 00	3, 026. 61	8, 532. 61
Cape Fear, N. C	9, 127. 00	3, 563. 90	12, 690. 90
Cedar Keys, Fla	480. 00		480. 00
Charleston, S. C	16, 017. 00	2, 029. 49	18, 046. 49
Columbia River, Oreg	15, 747. 17	3, 693. 05	19, 440. 22
Coos Bay, Oreg	570. 00		570. 00
Cumberland Sound, Fla	3, 900. 00	84. 40	3, 984. 40
Delaware Bay and River, Pa	10, 400. 29	16, 928. 57	27, 328. 86
Delaware Breakwater, Del	1, 737. 50	553. 10	2, 290. 60
Del Rio, Tex	2, 570. 00	838. 64	3, 408. 64
Eagle Pass, Tex	16, 408. 25	828. 11	17, 236. 36
Eastport, Me	1, 440. 00		1, 440. 00
El Paso, Tex	32, 140. 05	4, 008. 43	36, 148. 48
Eureka, Calif		20. 00	20. 00
Fort Bragg, Calif	10. 00		10. 00
Fort Monroe, Va	46, 694. 18	21, 177. 70	67, 871. 88
Freeport, Tex	2, 507. 23	427. 50	2, 934. 73
Galveston, Tex	36, 007. 40	17, 978. 01	53, 985. 41
Georgetown, S. C	60. 00		60. 00
Gloucester, Mass	2, 700. 00		2, 700. 00
Gulfport, Miss	5, 160. 00	1, 019. 87	6, 179. 87
Hidalgo, Tex	3, 474. 67	909. 50	4, 384. 17
Hawaiian Islands	29, 868. 33	9, 733. 34	39, 601. 67
Key West, Fla	7, 651. 93	570. 37	8, 222. 30
Lake Sabine district, Tex	30, 093. 62	6, 235. 40	36, 329. 02
Laredo, Tex	21, 705. 16	2, 776. 46	24, 481. 62
Marcus Hook, Pa	29, 539. 06	10, 999. 05	40, 538. 11
Mobile, Ala	26, 113. 99	11, 771. 70	37, 885. 69
New Orleans, La	68, 748. 19	21, 496. 13	90, 244. 32
Newport, R. I		50. 00	50. 00
New York, N. Y	244, 286. 90	94, 015. 09	338, 301. 99
Ogdensburg, N. Y	1, 273. 33		1, 273. 33
Pascagoula, Miss	485. 83		485. 83
Pensacola, Fla	14, 297. 33	5, 090. 36	19, 387. 69
Perth Amboy, N. J	1, 125. 00	1, 240. 32	2, 365. 32
Port Angeles, Wash		59. 00	59. 00
Port Aransas, Tex	1, 900. 00		1, 900. 00
Portland, Me	14, 390. 00	6, 669. 16	21, 059. 16
Porto Rico	36, 196. 80	9, 687. 76	45, 884. 56
Port San Juis, Calif	300. 00		300. 00
Port Townsend, Wash	22, 191. 58	5, 169. 95	27, 361. 53
Presidio, Tex	3, 431. 67	982. 68	4, 414. 35
Providence, R. I	8, 507. 67	2, 054. 81	10, 562. 48
Reedy Island, Del	8, 379. 96	704. 19	9, 084. 15
Rio Grande, Tex	6, 565. 44	979. 74	7, 545. 18
Roma, Tex		183. 25	183. 25
St. Andrews, Fla	840. 00	313. 82	1, 153. 82
St. Georges Sound, Fla	300. 00	125. 00	425. 00
St. Johns River, Fla	5, 530. 00	856. 73	6, 386. 73
St. Joseph, Fla	410. 00	430. 40	840. 40
San Diego, Calif	9, 643. 88	4, 758. 62	14, 402. 50
San Francisco, Calif	80, 707. 22	25, 109. 25	105, 816. 47
San Pedro, Calif	21, 383. 29	7, 580. 42	28, 963. 71
Savannah, Ga	15, 204. 33	5, 072. 20	20, 276. 53
Seattle, Wash	11, 925. 00	5, 912. 72	17, 837. 72
Tampa Bay, Fla	11, 328. 32	6, 602. 67	17, 930. 99
Terlingua, Tex	2, 770. 00		2, 770. 00
Texas City, Tex	2, 160. 00		2, 160. 00
Vineyard Haven, Mass		20. 50	20. 50
Virgin Islands	15, 173. 03	1, 251. 23	16, 424. 26
Leprosy Investigation Station		1, 900. 27	1, 900. 27
Freight, travel, and miscellaneous		13, 874. 97	13, 874. 97
Total	1, 064, 389. 13	416, 634. 56	1, 481, 023. 69

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